

# KV-E2533E / E2933E / E3433E

# KV-E2532U / E2932U

RM-830

RM-830

RM-832

## SERVICE MANUAL

*Spanish Model*

KV-E2533E

Chassis No. SCC-F33A-A

KV-E2933E

Chassis No. SCC-F33B-A

KV-E3433E

Chassis No. SCC-F33C-A

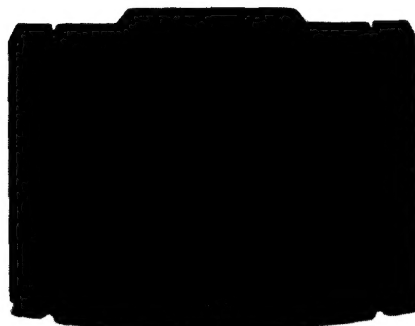
*UK Model*

KV-E2532U

Chassis No. SCC-F25A-A

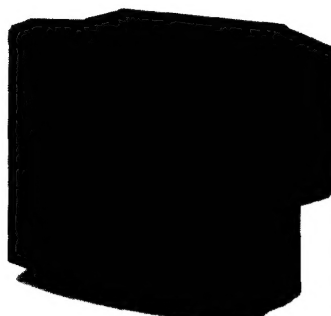
KV-E2932U

Chassis No. SCC-F25B-A



(Photo : KV-E2533E/ E2933E,  
KV-E2532U/ E2932U)

RM-830



(Photo : KV-E3433E)

RM-832

## AE-2 CHASSIS

### MODELS OF THE SAME SERIES

KV-E2533E/E2933E/E3433E

KV-E2532U/E2932U

### SPECIFICATIONS

#### 【KV-E2533E/E2933E/E3433E】

Television system B/G/H, D/K

Stereo system GERMAN/NICAM stereo

Channel coverage PAL B/G/H VHF: E2-E12 UHF: E21-E69

CABLE TV (1) : S1-S41

CABLE TV (2) : S01-S05, M1-M10, U1-U10

ITALIA VHF: A-H12 (C) UHF: 21-69

D/K VHF: R01-R12

UHF: R21-R60

Colour system

Picture tube

PAL, SECAM, NTSC3.58, NTSC4.43

Hi-Black Trinitron tube

Approx. 63 cm (25 inches)

(Approx. 59 cm picture measured diagonally)

110° -degree deflection

Approx. 72 cm (29 inches)

(Approx. 68 cm picture measured diagonally)

110° -degree deflection

Approx. 86.0 cm (34 inches)

(Approx. 80.0 cm picture measured diagonally)

110° -degree deflection

#### 【KV-E2532U/E2932U】

Television system I

Stereo system NICAM stereo

Channel coverage UHF: B21-B69

-Continued to next page-

## TRINITRON® COLOUR TV

# SONY®





## Inputs/Outputs Terminals

### (REAR)

① 1 21-pin Euro connector

(CENELEC standard)

Inputs for audio and video signals

- inputs for RGB
- outputs of TV video and audio signals

② 2/-② 2 21-pin Euro connector

- inputs for audio and video signals
- inputs for S video
- outputs for audio and video signals (selectable)

③ 4/-③ 4 21-pin Euro connector

- inputs for audio and video signals
- inputs for S video
- outputs for audio and video signals (monitor out)

④ 2, ⑤ 4 S video inputs

- 4 pin DIN

⑥ Audio inputs (L, R) -phono jacks

⑦ S video output - 4 pin DIN

⑧ Audio outputs - phono jacks

⑨ Audio outputs (variable) - phono jacks

External speaker terminals : 2 pin

Woofer terminal : 2 pin

### (FRONT)

① 3 Video input-phono jack

② Audio input-phono jacks

③ 3 S video input 4-pin DIN

④ Headphone jack : Stereo minijack

Sound output	2×11W RMS (side speakers), 35W music power (woofer) 2×30W (side speakers), 35W (woofer)
Power consumption	109Wh (KV-E2533E) 116.4Wh (KV-E2933E) 140Wh (KV-E3433E) 171W (KV-E2532U) 186W (KV-E2932U)
Dimensions incl.speakers	Approx.756 x 493 x 468 mm (w/h/d) (KV-E2533E/E2532U) Approx.837 x 553 x 513 mm (w/h/d) (KV-E2933E/E2932U) Approx. 822 x 659 x 587mm (w/h/d) (KV-E3433E)
Weight incl.speakers	Approx. 40 kg (KV-E2533E/E2532U) Approx. 53 kg (KV-E2933E/E2932U) Approx. 78 kg (KV-E3433E)
Supplied accessories	RM-830 Remote Commander (1) (KV-E2533E/E2933E/E2532U/E2932U) RM-832 Remote Commander (1) (KV-E3433E) IEC designation R6 batteries (2) Digital comb filter (High resolution) PIP (Picture-in-picture) TOPTXT
Other features	

### [RM-830/832]

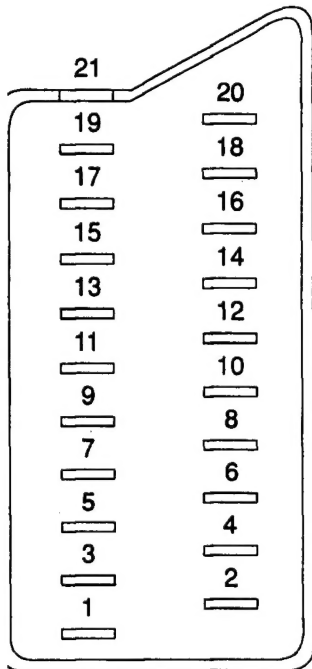
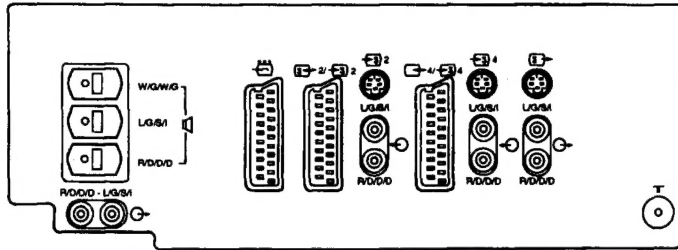
Remote control system	infrared control
Power requirements	3V dc 2 batteries IEC designation R6 (size AA)
Dimensions	Approx.65×222×21mm (w/h/d)
Weight	Approx.157g (Not including Batteries)

Design and specifications are subject to change without notice.

Model name	KV-E2533E	KV-E2532U	KV-E2933E	KV-E2932U	KV-E3433E
Item					
Pal Comb	ON	ON	ON	ON	ON
PIP	ON	ON	ON	ON	ON
RGB Priority	ON	ON	ON	ON	ON
Woofer Box	ON	ON	ON	ON	ON
Scart 1	ON	ON	ON	ON	ON
Scart 2	ON	ON	ON	ON	ON
Front In (3)	ON	ON	ON	ON	ON
Scart 4	ON	ON	ON	ON	ON
Dyn.Convergence	OFF	OFF	OFF	OFF	ON
Projector	OFF	OFF	OFF	OFF	OFF
AxB in 16:9 mode	ON	ON	ON	ON	ON
Norm B/G	ON	OFF	ON	OFF	ON
Norm I	OFF	ON	OFF	ON	OFF
Norm D/K	ON	OFF	ON	OFF	ON
Norm AUS	OFF	OFF	OFF	OFF	OFF
Norm L	OFF	OFF	OFF	OFF	OFF
Norm SAT	OFF	OFF	OFF	OFF	OFF
Norm N	OFF	OFF	OFF	OFF	OFF
Language Preset	Espanol	English	Espanol	English	Espanol



21 pin connector (E1, E2/E4)



Pin No	1	2	4	Signal	Signal level
1	○	○	○	Audio output B (right)	Standard level: 0.5Vrms Output impedance: less than 1kohm*
2	○	○	○	Audio input B (right)	Standard level: 0.5Vrms Input impedance: More than 10kohms*
3	○	○	○	Audio output A (left)	Standard level: 0.5Vrms Output impedance: less than 1kohm*
4	○	○	○	Ground (audio)	
5	○	○	○	Ground (blue)	
6	○	○	○	Audio input A (left)	Standard level: 0.5Vrms Input impedance: More than 10kohms*
7	○	●	●	Blue input	0.7V±3dB, 75ohms, positive
8	○	○	○	Function select (AV control)	High state (9.5—12V): Part mode Low state (0—2V): TV mode Input impedance: More than 10kohms Input capacitance: Less than 2nF
9	○	○	○	Ground (green)	
10	○	○	○	Open	
11	○	●	●	Green	Green signal: 0.7V±3dB. 75ohms, positive
12	○	○	○	Open	
13	○	○	○	Ground (red)	
14	○	○	○	Ground (blanking)	
15	○	—	—	Red input	0.7V±3dB, 75ohms, positive
	—	○	○	(S signal) croma input	0.3V±3dB, 75ohms, positive
16	○	●	●	Blanking input (Ys signal)	High state (1—3V) Low state (0—0.4V) Input impedance: 75ohms
17	○	○	○	Ground (video output)	
18	○	○	○	Ground (video input)	
19	○	○	○	Video output	1V±3dB, 75ohms, positive Sync: 0.3V(-3, +10dB)
20	○	—	—	Video input	1V±3dB, 75ohms, positive Sync: 0.3V(-3, +10dB)
	—	○	○	Video Input/Y (S signal)	1V±3dB, 75ohms, positive Sync: 0.3V(-3, +10dB)
21	○	○	○	Common ground (plug, shield)	

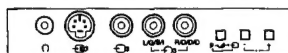
○ connected

● unconnected (open)

\* At 20 Hz—20kHz

4 pin connector (E3)

Pin No	Signal	Signal level
1	Ground	
2	Ground	
3	Y (S signal) input	1V±3dB 75ohm, positive Sync 0.3V <sup>-3</sup> <sub>+10</sub> dB
4	C (S signal) input	0.3V±3dB 75ohm, positive






## TABLE OF CONTENTS

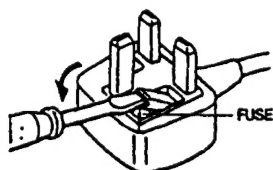
Section	Title	Page	Section	Title	Page
1.	GENERAL		4.	CIRCUIT ADJUSTMENTS	
1-1.	Overview .....	5	4-1.	Electrical Adjustments .....	28
1-2.	Tuning in to TV Stations .....	6	4-2.	Volume Electrical Adjustments .....	32
1-3.	Additional Presetting Functions .....	7	4-3.	Test Mode 2 : .....	33
1-4.	Watching the TV .....	9	4-4.	Error Message .....	34
1-5.	Adjusting and Setting the TV Using the Menu .....	10	4-5.	Error II C Bus Diagnosis System in AE2 Chassis Available .....	34
1-6.	PIP (Picture in Picture) .....	11			
1-7.	Teletext .....	11			
1-8.	Connecting and Operating Optional Equipment .....	13			
1-9.	For Your Information .....	14	5.	DIAGRAMS	
2.	DISASSEMBLY		5-1.	Block Diagrams (1) .....	35
2-1-1.	Rear Cover Removal (25 inch, 29 inch) .....	17	5-2.	Block Diagrams (2) .....	39
2-1-2.	Rear Cover Removal (34 inch) .....	17	5-3.	Circuit Boards Location .....	43
2-2-1.	Chassis Assy Removal (25 inch, 29 inch) .....	17	5-3.	Printed Wiring Boards and Schematic Diagrams .....	43
2-2-2.	Chassis Assy Removal (34 inch) .....	17	• F1, F2, K, H1, H2, J Boards .....	44	
2-3.	Service Position .....	18	• A Board .....	51	
2-4.	B1, M, V and A1 Boards Removal .....	18	• V, D Boards .....	59	
2-5.	Extension Board .....	19	• M Board .....	67	
2-6.	F Bracket Removal .....	19	• D1, P Boards .....	74	
2-7.	J and K Boards Removal .....	20	• B1, VM, IF, C Boards .....	81	
2-8.	P Board Removal .....	20	• A1 Board .....	87	
2-9-1.	Wire Rod .....	21	5-4.	Semiconductors .....	92
2-9-2.	Wire Rod .....	21			
2-10.	Picture Tube Removal .....	22	6.	EXPLODED VIEWS	
3.	SET-UP ADJUSTMENTS		6-1.	Chassis (KV-E2533E/ E2532U/ E2933E/ E2932U) .....	94
3-1.	Beam Landing .....	23	6-2.	Picture Tube (KV-E2533E/ E2532U/ E2933E/ E2932U) .....	95
3-2.	Convergence .....	24	6-3.	SPEAKER (KV-E2533E/ E2932U/ E2933E/ E2932U) ....	96
3-3.	Focus .....	27	6-4.	CHASSIS (KV-E3433E) .....	97
3-4.	White Balance .....	27	6-5.	Picture Tube (KV-E3433E) .....	98
			6-6.	SPEAKER (KV-E3433E) .....	99
			7.	ELECTRICAL PARTS LIST .....	100

### UK Model

The flexible mains lead is supplied connected to a BS1363 fused plug having a fuse of 5 amp capacity. Should the fuse need to be replaced, use a 5 AMP FUSE approved by ASTA to BS1362, ie carried the  mark.

IF THE PLUG SUPPLIED WITH THIS APPLIANCE IS NOT SUITABLE FOR YOUR SOCKET OUTLETS IN YOUR HOME, IT SHOULD BE CUT OFF AND AN APPROPRIATE PLUG FITTED. THE PLUG SEVERED FROM THE MAINS LEAD MUST BE DESTROYED AS A PLUG WITH BARED WIRES IS DANGEROUS IF ENGAGED IN A LIVE SOCKET OUTLET.

When an alternative type of plug is used it should be fitted with a 5 AMP FUSE, otherwise the circuit should be protected by a 5 AMP FUSE at the distribution board.



### (CAUTION)


SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

### WARNING!!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.

THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

### SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.



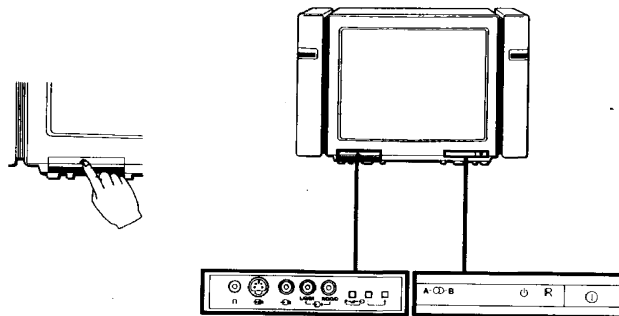
## 1-1. OVERVIEW

## SECTION 1 GENERAL

This section is extracted from instruction manual.

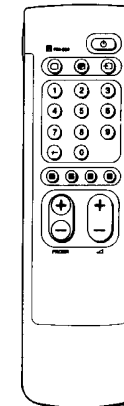
This section briefly describes the buttons and controls on the TV set and on the Remote Commander. For more information, refer to the pages given next to each description.

### TV set - front



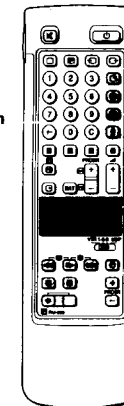
Symbol	Name	Refer to page
⏻	Main power switch	42
⏻	Standby indicator	42
A-CD-B	Stereo A/B indicators	44
🎧	Headphones jack	50
3, 3, 3, 3	Input jacks (S-video/video/audio)	50
⏻	Function selector (Programme/volume/input)	43
↔	Adjustment buttons for function selector	43

### Remote Commander



Simple side

TV/Teletext operation



Full-Function side

PIP operation

Menu operation

Video operation

**Note**  
The SAT button does not operate with this TV.

### TV-operation

Symbol	Name	Refer to Page
⏻	Mute on/off button	43
⏻	Standby button	42
⏻	TV power on/TV mode selector button	42
⏻	Teletext button	43
⏻	Input mode selector	43
⏻	Output mode selector	51
1,2,3,4,5,6,7,8,9, and 0	Number buttons	42
↔	Double-digit entering button	42
C	Direct channel entering button	41
⏻	Volume control button	42
PROGR +/-	Programme selectors	42
⏻	Teletext page access buttons	47
⏻	Picture adjustment button	44
🎵	Sound adjustment button	44
⏻	On-screen display button	43
⏻	Teletext hold button	47
⏻	Time display button	43
⏻	Fastext buttons	47

### PIP (Picture-in-picture) operation

Symbol	Name	Refer to Page
⏻	PIP on / off button	46
⏻	PIP source selector	46
⏻	Swap button	46
⏻	PIP position changing button	46

### Menu operation

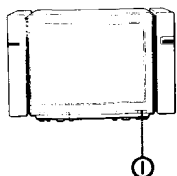
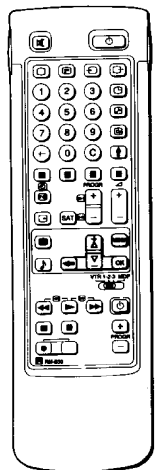
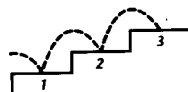
Symbol	Name	Refer to Page
MENU	Menu on / off button	36
⏻	Select buttons	36
OK	OK (confirming) button	36
⏻	Back button	36

### Video operation

Symbol	Name	Refer to Page
VTR1/2/3	Video equipment selector	52
MDP		
⏻	Video equipment operation buttons	52
PROGR +/-		



## 1-2. TUNING IN TO TV STATIONS



To go back to main menu  
Keep pressing ◀.

To go back to the normal TV picture  
Press MENU.

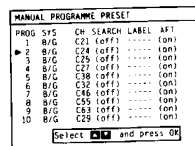
Note on the Demo function  
If you choose Demo on the main menu, you can see a sequential demonstration of the menu functions.

Once you have set up the TV, you can choose the language of the menu. Then you should preset the channels (up to 100 channels) by choosing either the automatic or manual method.

The automatic method is easier if you want to preset all receivable channels at once. Use the manual method if you only have a few channels and want to preset channels one by one. The manual method is also convenient for allocating programme numbers to various video input sources.



Auto Menu



Manual Menu

### Before you begin

- Check that the Full-Function side of the Remote Commander is visible.
- Locate Menu operation buttons on the Remote Commander. They are shaded in the illustration at the left.

## 1 Display the Menu

- Depress ① on the TV.

The TV will switch on. If the standby indicator on the TV is lit, press ① or a number button on the Remote Commander.

- Press the MENU button.

The main menu appears.

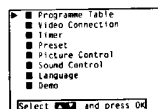


Fig. 1.

## 2 Choose a language

- Select Language with the Δ+ or ▽- button and press the OK button.

The LANGUAGE menu appears. (See Fig. 2)

- Select the language you want with Δ+ or ▽-, press OK, and then press ◀.

Now, choose one of the following methods  
"Preset Channels Automatically"

or

"Preset Channels Manually".

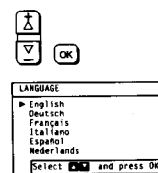


Fig. 2.

With this method, you can preset all receivable channels at once.

To stop automatic channel presetting  
Press ◀ on the Remote Commander.

### Notes

• After presetting the channels automatically, you can check which channels are stored on which programme positions. For details, see "Using the Programme Table" on page 45.

• You can exchange the programme positions to have them appear on screen in the order you like. For details, see "Exchanging the Programme Positions" on page 39.

Use this method if there are only a few channels in your area to preset or if you want to preset channels one by one. You may also allocate programme numbers to various video input sources.

If you have made a mistake

Press ◀ to go back to the previous position.

To go back to main menu

Keep pressing ◀.

To go back to the normal TV picture

Press MENU.

## 3 Preset channels automatically

- Select Preset with Δ+ or ▽- and press OK.  
The PRESET menu appears. (See Fig. 3.)
- Select Auto Programme with Δ+ or ▽- and press OK.  
The AUTO PROGRAMME menu appears. (See Fig. 4.)
- Press OK.  
Select if necessary the TV broadcast system with Δ+ or ▽- and press OK. (B/G for western European countries, D/K for eastern European countries) The first element of the "PROG" number will be highlighted.
- Select the programme (number button) from which you want to start presetting. Select the first element of the double-digit number with Δ+ or ▽- or the number buttons (e.g. For "04", select "0" here) and press OK.  
The second element of "PROG" will be highlighted.
- Select the second element of the double-digit number with Δ+ or ▽- or the number buttons (e.g. For "04", select "4" here) and press OK.  
(See Fig. 5.) and press OK.
- Select "C" or "S" with Δ+ or ▽- and press OK.  
The automatic channel presetting starts.

When presetting is finished the preset menu reappears.  
All available channels are now stored on successive number buttons.

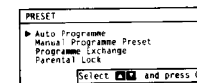


Fig. 3.



Fig. 4.



Fig. 5.

## 3 Preset channels manually

- Select Preset with Δ+ or ▽- and press OK.  
The PRESET menu appears. (See Fig. 6.)
- Select Manual Programme preset with Δ+ or ▽- and press OK.  
The MANUAL PROGRAMME PRESET menu appears. (See Fig. 7.)

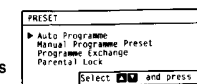


Fig. 6.

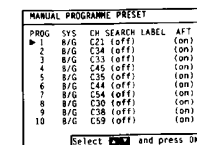


Fig. 7.



To tune in a channel by frequency  
After selecting F in step 5, enter three digits using the number buttons.

- 3 Using  $\Delta$ + or  $\nabla$ -, select the programme position (number button) to which you want to preset a channel, and press OK.
- 4 Select if necessary the TV broadcast system (B/G for western European countries, D/K for eastern European countries) or a video input source (EXT) with  $\Delta$ + or  $\nabla$ -. Then press OK. The CH position will be highlighted. (See Fig. 8.)
- 5 Using  $\Delta$ + or  $\nabla$ -, select C (to preset a regular channel), or F (to tune in by frequency) and press OK. The first element of the "CH" number will be highlighted. If you have selected EXT in step 4, select the video input source with  $\Delta$ + or  $\nabla$ -. (See Fig. 9.)

There are two ways to preset channels. If you know the channel number, go to step "6-Manual",

or

if you don't know the channel number, go to step "6- Search".

#### 6 Manual

- a Select the first element of the "CH" number with  $\Delta$ + /  $\nabla$ - or the number buttons and press OK. The second element of the "CH" number will be highlighted.
- b Select the second element of the number with  $\Delta$ + /  $\nabla$ - or the number buttons. The selected number appears. (See Fig. 10.)
- c Press OK. The "SEARCH" position is highlighted and the selected channel is now stored. (See Fig. 11.)
- d Press OK until the cursor appears by the next programme position.
- e Repeat steps 3 to 6 to preset other channels.

#### 6 Search

- a Press OK repeatedly until the colour of the SEARCH position changes.
- b Start searching for the channel with  $\Delta$ + (up) or  $\nabla$ - (down). The CH position changes colour. (See Fig. 12.) The CH number starts counting up or downwards. When a channel is found, it stops. (See Fig. 13.)
- c Press OK if you want to store this channel. If not, press  $\Delta$ + or  $\nabla$ - to continue channel searching.
- d Press OK until the cursor appears by the next programme position.
- e Repeat steps 3 to 6 to preset other channels.

2 B/G (off) ..... (on)

Fig. 8.

3 EXT AVI ..... (on)

Fig. 9.

2 B/G (off) ..... (on)

Fig. 10.

2 B/G C35 (off) ..... (on)

Fig. 11.

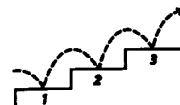
2 B/G C35 (off) ..... (on)

Fig. 12.

2 B/G C50 (▲▼) ..... (on)

Fig. 13.

## 1-3. ADDITIONAL PRESETTING FUNCTIONS



This section shows you additional presetting functions such as exchanging or skipping programme positions, captioning a station name, manual fine-tuning, and using the parental lock.

### Before you begin

- Check that the Full Function side of the Remote Commander is visible
- Locate the Menu operation buttons.

## Exchanging Programme Positions

With this function, you can exchange the programme positions to a preferable order.

- 1 Press MENU to display the main menu.
- 2 Select Preset with  $\Delta$ + or  $\nabla$ - and press OK. The PRESET menu appears.
- 3 Select Programme Exchange with  $\Delta$ + or  $\nabla$ - and press OK. The PROGRAMME EXCHANGE menu appears. (See Fig. 14.)
- 4 Using  $\Delta$ + or  $\nabla$ -, select the programme position you want to exchange with another and press OK. The colour of the selected position changes. (See Fig. 15.)
- 5 Using  $\Delta$ + or  $\nabla$ -, select the programme position to be exchanged and press OK. Now the two programme positions have been exchanged. (See Fig. 16.)
- 6 Repeat steps 4 and 5 to exchange other programme positions.

PROGRAMME EXCHANGE					
PROG	CH	LABEL	PROG	CH	LABEL
0	AVI	VHS	8	C30	SAT1
1	---	---	9	C35	RTL
2	C52	ZDF	10	---	---
3	C61	ARD	11	---	---
4	---	---	12	---	---
5	VIDEO	BWM	13	---	---
6	---	---	14	---	---
7	---	---	15	---	---

Fig. 14.

3 C12 ARD 11 ..... (on)

Fig. 15.

PROGRAMME EXCHANGE					
PROG	CH	LABEL	PROG	CH	LABEL
0	AVI	VHS	8	C26	SAT1
1	---	---	9	C32	RTL
2	C22	ZDF	10	---	---
3	C26	ARD	11	---	---
4	---	---	12	---	---
5	VIDEO	BWM	13	---	---
6	---	---	14	---	---
7	---	---	15	---	---

Fig. 16.

## Tuning in a Channel Temporarily

You can tune in a channel temporarily, even when it has not been preset. Use the buttons on the Full-Function side of the Remote Commander.

- 1 Press C on the Remote Commander. The indication "C" appears on the screen.
- 2 Enter the double-digit channel number using the number buttons (e.g. for channel 4, first press 0, then 4). The channel appears. However, the channel will not be stored.

C

For programme positions beyond 15  
The display scrolls automatically.

If you have made a mistake  
Press  $\leftarrow$  to go back to the previous position.  
To go back to main menu  
Keep pressing  $\leftarrow$ .  
To go back to the normal TV picture  
Press MENU.



## MANUAL PROGRAMME PRESET

### Skipping Programme Positions

You can skip unused programme positions when selecting programmes with the PROGR +/- buttons. However, the skipped programmes may still be called up when you use the number buttons.

- 1 Press MENU to display the main menu.
- 2 Select Preset with  $\Delta$ + or  $\nabla$ - and press OK. The PRESET menu appears.
- 3 Select Manual Programme Preset with  $\Delta$ + or  $\nabla$ - and press OK. The MANUAL PROGRAMME PRESET menu appears. (See Fig. 18.)
- 4 Using  $\Delta$ + or  $\nabla$ -, select the programme position which you want to skip and press OK. The "SYSTEM" position changes colour.
- 5 Press  $\Delta$ + or  $\nabla$ - until --- appears in the SYSTEM position. (See Fig. 18.)
- 6 Press OK. (See Fig. 19)
- 7 Repeat steps 4 to 6 to skip other programme positions.



MANUAL PROGRAMME PRESET				
PROG	SYS	CH	SEARCH	LABEL
1	B/G	C21(off)	----	(on)
2	B/G	C24(off)	----	(on)
3	B/G	C25(off)	----	(on)
4	B/G	C27(off)	----	(on)
5	B/G	C28(off)	----	(on)
6	B/G	C22(off)	----	(on)
7	B/G	C26(off)	----	(on)
8	B/G	C25(off)	----	(on)
9	B/G	C23(off)	----	(on)
10	B/G	C29(off)	----	(on)

Fig. 17.

Fig. 18.

Fig. 19.

## MANUAL PROGRAMME PRESET

### Captioning a Station Name

You can "name" a channel or an input video source using up to five characters (letters or numbers) to be displayed on the TV screen (e.g. ZDF). Using this function, you can easily identify which channel or video source you are watching.

- 1 Press MENU to display the main menu.
- 2 Select Preset with  $\Delta$ + or  $\nabla$ - and press OK. The PRESET menu appears.
- 3 Select Manual Programme Preset with  $\Delta$ + or  $\nabla$ - and press OK. The MANUAL PROGRAMME PRESET menu appears. (See Fig. 20.)
- 4 Using  $\Delta$ + or  $\nabla$ -, select the programme position you want to caption and press OK repeatedly until the first element of the LABEL position is highlighted.
- 5 Select a letter or number with  $\Delta$ + or  $\nabla$ - and press OK. The next element will be highlighted. Select other characters in the same way. If you want to leave an element blank, select - and press OK. (See Fig. 21.)
- 6 After selecting all the characters, press OK repeatedly until the cursor appears by the next programme position (at the left margin). Now the caption you chose is stored. (See Fig. 22.)
- 7 Repeat steps 5 and 6 to caption names for other channels.

MANUAL PROGRAMME PRESET				
PROG	SYS	CH	SEARCH	LABEL
1	B/G	C21(off)	----	(on)
2	B/G	C24(off)	----	(on)
3	B/G	C25(off)	----	(on)
4	B/G	C27(off)	----	(on)
5	B/G	C28(off)	----	(on)
6	B/G	C22(off)	----	(on)
7	B/G	C26(off)	----	(on)
8	B/G	C25(off)	----	(on)
9	B/G	C23(off)	----	(on)
10	B/G	C29(off)	----	(on)

Fig. 20.

Fig. 21.

Fig. 22.

If you have made a mistake  
Press  $\leftarrow$  to go back to the previous position.  
To go back to main menu  
Keep pressing  $\leftarrow$ .

To go back to the normal TV picture  
Press MENU.

## Manual Fine-Tuning

Normally, the AFT (automatic fine-tuning) is already operating. However, if the picture is distorted, you can use the manual fine tuning function to obtain better picture reception.

- 1 Press MENU to display the main menu.
- 2 Select Preset with  $\Delta$ + or  $\nabla$ - and press OK. The PRESET menu appears.
- 3 Select Manual Programme Preset with  $\Delta$ + or  $\nabla$ - and press OK. The MANUAL PROGRAMME PRESET menu appears. (See Fig. 23.)
- 4 Using  $\Delta$ + or  $\nabla$ -, select the programme position corresponding to the channel which you want to manually fine-tune, and press OK repeatedly until the AFT position changes colour.
- 5 Fine-tune the channel with  $\Delta$ + or  $\nabla$ - so that you get the best TV reception. As you press the cursor buttons, the frequency changes from -15 to +15. (See Fig. 24.)
- 6 After fine tuning, press OK. The cursor appears beside the next programme position (at the left margin). (See Fig. 25.) Now the fine-tuned level is stored.
- 7 Repeat steps 4 to 6 to fine-tune other channels.

MANUAL PROGRAMME PRESET				
PROG	SYS	CH	SEARCH	LABEL
1	B/G	C21(off)	----	(on)
2	B/G	C24(off)	----	(on)
3	B/G	C25(off)	----	(on)
4	B/G	C27(off)	----	(on)
5	B/G	C28(off)	----	(on)
6	B/G	C22(off)	----	(on)
7	B/G	C26(off)	----	(on)
8	B/G	C25(off)	----	(on)
9	B/G	C23(off)	----	(on)
10	B/G	C29(off)	----	(on)

Fig. 23.

Fig. 24.

Fig. 25.

To reactivate AFT  
(automatic fine tuning)  
Repeat from the beginning and select "ON" in step 5.

## PARENTAL LOCK

### Parental Lock

You can prevent undesirable broadcasts from appearing on the screen. We suggest you use this function to prevent children from watching programmes which you consider unsuitable.

- 1 Press MENU to display the main menu.
- 2 Select Preset with  $\Delta$ + or  $\nabla$ - and press OK. The PRESET menu appears.
- 3 Select Parental Lock with  $\Delta$ + or  $\nabla$ - and press OK. The PARENTAL LOCK menu appears. (See Fig. 26.)
- 4 Using  $\Delta$ + or  $\nabla$ -, select the programme position you want to block and press OK. The selected PROG number, CH and LABEL change colour indicating that this programme is now blocked. (See Fig. 27.)
- 5 Repeat step 4 to block other programme positions.

PARENTAL LOCK					
PROG CH LABEL			PROG CH LABEL		
0	AV1	VHS	8	C41	---
1	C25	ARD	9	C45	---
2	C42	ZDF	10	C46	---
3	C26	RTL	11	C47	---
4	C34	SAT1	12	C48	---
5	C35	---	13	C49	---
6	C36	---	14	C50	---
7	C40	---	15	C51	---

Select **OK** and press **OK**

Fig. 26.

PROG	CH	LABEL	PROG	CH	LABEL
0	AXI	IMS	8	C41	----
1	C25	AND	9	C45	----
2	C42	TOP	10	C46	----
3	C26	RTL	11	C47	----

Fig. 27.

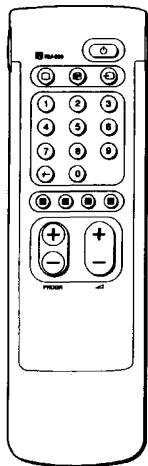
If you try to select a programme that has been blocked  
The message "Locked" appears on the blank TV screen.

### Cancelling blocking

- 1 On the PARENTAL LOCK menu, select the programme position you want to unblock with  $\Delta$ + or  $\nabla$ -.
- 2 Press OK. The selected PROG number, CH and LABEL change colour to normal colour indicating that the blocking has been cancelled.



## 1-4. WATCHING THE TV



If no picture appears when you depress  $\odot$  on the TV

and if the standby indicator on the TV is lit, the TV is in standby mode. Press  $\odot$  or one of the number buttons to switch it on.

This section explains the basic functions you use while watching TV. Most of the operations can be done using the simple side of the Remote Commander.

### Switching the TV on and off

#### Switching on

Depress  $\odot$  on the TV.

#### Switching off temporarily

Press  $\odot$  on the Remote Commander.

The TV enters standby mode and the standby indicator on the front of the TV lights up.

To switch on again

Press  $\odot$ , PROG  $\pm$ , or one of the number buttons on the Remote Commander.

#### Switching off completely

Depress  $\odot$  on the TV.

### Selecting TV Programmes

Press PROG  $\pm$  or press number buttons.

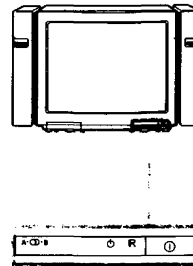
#### To select a double-digit number

Press  $\pm$ , then the numbers.

For example, if you want to choose 23, press  $\pm$ , 2, and 3.

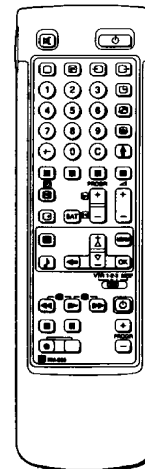
### Adjusting the Volume

Press  $\pm$ .



For details of the teletext operation, refer to page 47.

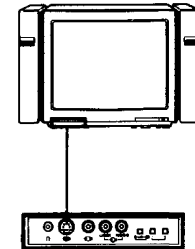
For details of the video input picture, refer to page 51.



## Operating the TV Using the Buttons on the TV

With the buttons on the TV, you can select programmes, adjust the volume, and select video input sources.

- Press  $\text{P} \rightarrow \leftarrow$  button repeatedly until the programme number,  $\Delta$  (for volume), or  $\text{V}$  (for video input picture) appears. Then adjust with the  $\pm$  buttons.
- Press  $\pm$  buttons to switch on the TV from the standby mode.
- Press  $\pm$  simultaneously to reset picture and sound controls to the factory preset level (RESET function.)



## Watching Teletext or Video Input

### Watching teletext

- Press  $\text{P}$  to view the teletext.
- Press three number buttons to select a page.
- Press one of the coloured buttons for fastext operation.
- Press  $\text{P}$  (PAGE  $\rightarrow$ ) or  $\text{P}$  (PAGE  $\leftarrow$ ) for the next or preceding page.
- To go back to the normal TV picture, press  $\odot$ .

### Watching a video input picture

Press  $\text{V}$  repeatedly until the desired video input appears. To go back to the normal TV picture, press  $\odot$ .

## More Convenient Functions

Use the Full-Function side of the Remote Commander.

### Displaying the on screen indications

- Press  $\text{O}$  once to display all the indications. They will disappear after some seconds.
- Press  $\text{O}$  twice to have the programme number and label stay on screen. Press twice again to make indications disappear.

### Muting the sound.

Press  $\text{M}$ .

To resume normal sound, press  $\text{M}$  again.

### Displaying the time

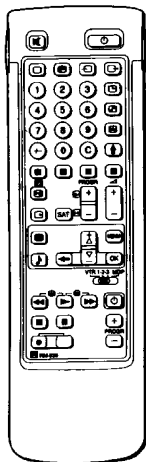
Press  $\text{T}$ . This function is available only when teletext is broadcast.

To make the time display disappear, press  $\text{T}$  again.



## 1-5. ADJUSTING AND SETTING THE TV USING THE MENU

### PICTURE CONTROL SOUND CONTROL



### Adjusting the Picture and Sound

Although the picture and sound are adjusted at the factory, you can adjust them to suit your own taste. In addition, you can change the aspect ratio of the TV display for wide screen effect, or set the resolution to obtain a higher quality picture. You can also select dual sound (bilingual) programmes when available or adjust the sound for listening with the headphones.

- Press (for picture) or (for sound) on the Remote Commander.  
or  
Press MENU and select Picture Control or Sound Control, then press OK. The PICTURE CONTROL or SOUND CONTROL menu appears. (See Fig. 28 or Fig. 29)
- Using or , select the item you want to adjust and press OK. The selected item changes colour. (See Fig. 30)
- Adjust the setting with or and press OK. The cursor appears beside the next item (at the left margin). (See Fig. 31)  
For the effect of each control, see the table below.
- Repeat steps 2 and 3 to adjust other items.

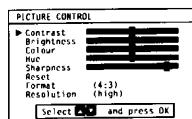


Fig. 28.

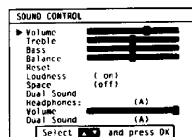


Fig. 29.



Fig. 30.



Fig. 31.

#### Effect of each control

PICTURE CONTROL		Effect
Contrast	Less ——— More	
Brightness	Darker ——— Brighter	
Colour	Less ——— More	
Hue	Greenish ——— Reddish	
Sharpness	Softer ——— Sharper	
Reset	Resets picture to the factory preset levels.	
Format	4 : 3 : Normal    16 : 9 : Wide screen effect	
Resolution	Normal    High : Obtain a higher quality picture	
SOUND CONTROL		Effect
Volume	Less ——— More	
Treble	Less ——— More	
Bass	Less ——— More	
Balance	More left ——— More right	
Reset	Resets sound to the factory preset levels.	
Loudness	off : Normal    on : When listening to low volume sound.	
Space	off : Normal    on : Obtain acoustic sound effect.	
Dual Sound	A : left channel    B : right channel    stereo mono	The selected mode of the A-CD-B indicator on the TV lights up.
Headphones:		
Volume	Less ——— More	
Dual Sound	A : left channel    B : right channel    stereo mono	

If you have made a mistake  
Press to go back to the previous position.  
To go back to the main menu  
Keep pressing .  
To go back to the normal TV picture  
Press MENU.

Note  
HUE is only available for NTSC colour system and RESOLUTION does not work for SECAM colour system.

Note on LINE OUT  
The audio level and the dual sound mode output from the jack on the rear correspond to the HEADPHONES VOLUME and DUAL SOUND settings.

When watching video input picture  
You can select DUAL SOUND to change the sound.

### PROGRAMME TABLE

To select a programme using this menu  
Select the programme number with or and press OK. The selected programme appears.

To go back to the normal TV picture  
Press MENU.

### Using the Programme Table

On this table, you can see which channel is preset to which programme position. You can also select programmes using this table.

From the main menu, select Programme Table with or and press OK.

The PROGRAMME TABLE menu appears. (See Fig. 32)

To scroll to higher programme numbers, press .

PROGRAMME TABLE			
PROG CH	LABEL	PROG CH	LABEL
1 C21	---	11 C30	---
2 C24	---	12 C40	---
3 C26	---	13 C41	---
4 C27	---	14 C43	---
5 C23	---	15 C34	---
6 C22	---	16 C55	---
7 C32	---	17 C56	---
8 C36	---	18 C57	---
9 C38	---	19 C48	---
10 C39	---	20 C46	---

Fig. 32.

### TIMER

To switch off the timer  
Select "OFF" in step 3.

To check the remaining time  
Press .

### Using the Sleep Timer

You can select a time period after which the TV automatically switches into standby mode.

- From the main menu, select Timer with or and press OK.  
The Timer menu appears. (See Fig. 33.)
- Press OK.  
The time period option changes colour.
- Select the time period with or .  
The time period (in minutes) changes as follows:  
10 → 20 → 30 → 40 → 50 → 60 → 70 → 80 → 90  
↑  
OFF
- After selecting the time period, press OK.  
The cursor moves back to the left margin and the timer starts counting.  
One minute before the TV switches into standby mode, a message is displayed on the screen.

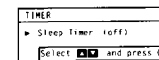
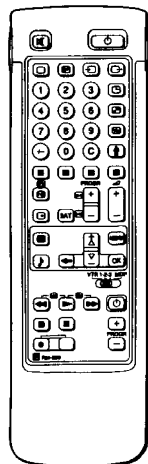


Fig. 33.

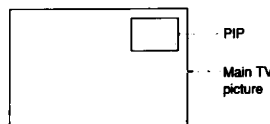


## 1-6. PIP (PICTURE IN PICTURE)



**Note**  
RGB input source cannot be displayed in PIP.

With this function you can display a "PIP screen" (small picture) within the main TV picture. In this way you can watch or monitor the video output from any connected equipment (for example from a VTR) while watching TV or vice versa. For information about connection of other equipment, refer to page 50.



### Switching PIP on and off

Press **PIP**.  
The PIP screen will be displayed. The PIP picture will come from the source chosen when the TV was last used.

**To switch PIP off**  
Press **PIP** again.

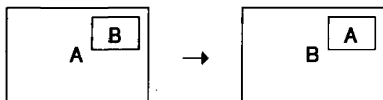
### Selecting a PIP source

Press **↑**.  
The symbol **↑** will be displayed at the bottom, left-hand corner of the screen.  
Press **↵** repeatedly until the desired PIP source is indicated (e.g. TV, AV1, AV2, YC2, AV3, YC3, AV4, YC4).

**Note**  
If no video source has been connected, the PIP picture will be noisy.

### Swapping screens

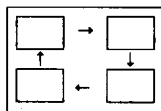
Press **PIP**.  
The main screen will switch the picture with the PIP screen.



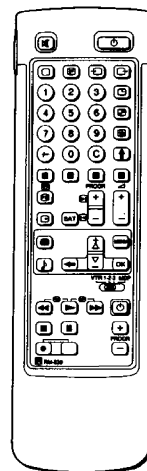
**Note**  
If a TV programme is on the PIP screen and a video source on the main picture, and you want to change channels, first press **↑** and then the programme buttons or **PROGR +/-**.

### Changing the position of the PIP

Press **←** repeatedly to change the position of the PIP screen within the main screen. There are four different positions available.



## 1-7. TELETEXT



**Note**  
Teletext errors may occur if the broadcasting signals are weak.

**With the simple side of the Remote Commander**  
You can switch teletext on and off, operate Fastext, and directly select page numbers.

TV stations broadcast an information service called Teletext via the TV channels. Teletext service allows you to receive various information pages such as weather reports or news at any time you want. For advanced teletext operation, use the buttons on the Full-Function side of the Remote Commander.

## Direct Access Functions

### Switching Teletext on and off

- 1 Select the TV channel which carries the teletext broadcast you want to watch.
- 2 Press **TE** to switch on teletext.  
A teletext page will be displayed (usually the index page). If there is no teletext broadcast, P100 is displayed on the information line at the top of the screen.

**To switch teletext off**  
Press **TE**.

### Selecting a teletext page

**With direct page selection**  
Use the number buttons to input the three digits of the chosen page number.  
If you have made a mistake, type in any three digits. Then re-enter the correct page number.

### With page-catching

- 1 Select a teletext page with a page overview (e.g. index page).
- 2 Press **PC** twice. "Page catching" will be displayed on the information line. The last digit of the first displayed page number flashes.
- 3 Using **+/** or **-**, select the desired page and press **OK**.  
The requested page will appear in a few seconds.

### Accessing next or preceding page

Press **PG +** (PAGE +) or **PG -** (PAGE -).  
The next or preceding page appears.

### Superimposing the teletext display on the TV programme

- Press **TE** once in teletext mode or twice in TV mode.
- Press **TE** again to resume normal teletext reception.

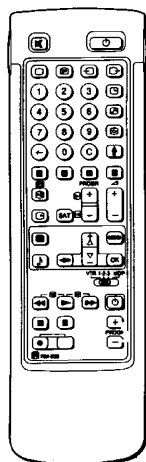
### Preventing a teletext page from being updated

- Press **HOLD**. The HOLD symbol "H" displayed on the information line.
- Press **TE** to resume normal teletext reception.

### Using Fastext

With Fastext you can access pages with one key stroke. When a Fastext page is broadcast, a colour-coded menu will appear at the bottom of the screen. The colours of this menu correspond to the red, green, yellow and blue buttons on the Remote Commander.  
Press the corresponding coloured button on the Remote Commander which corresponds to the colour-coded menu. The page will be displayed after some seconds.





**Note**  
Some of the features may not be available depending on the Teletext service.

## Using the Teletext Menu

This TV is provided with a menu-guided teletext system. When teletext is switched on, you can use the menu buttons to operate the teletext menu. Select the teletext menu functions in the following way:

- 1 Press MENU. The menu will be superimposed on the teletext display. (See Fig. 34)
- 2 Using  $\Delta$  or  $\nabla$ , select the teletext function you want and press OK. (See Fig. 35)

### USER PAGES/PRESET USER PAGES

See page 49 for information about presetting and operating the user pages.

### INDEX

The index will give you an overview of the contents of the teletext and the page numbers.

### TOP/BOTTOM/FULL

For convenient reading of a teletext page, you can enlarge the teletext display. After having selected the function, an information line Top/Bottom/Full will be displayed. (See Fig. 36)

Press  $\Delta$  for Top to enlarge the upper half,  $\nabla$  for Bottom to enlarge the lower one and OK for Full to resume the normal size.

Press  $\text{OK}$  to resume normal teletext reception.

### TEXT CLEAR

After having selected the function, you can watch a TV programme while waiting for a teletext page to be displayed. (See Fig. 37)

Press  $\text{OK}$  to resume normal teletext reception.

### SUBTITLES

Your teletext service will inform you if a TV programme is subtitled. After having selected the function the subtitles will be displayed.

### REVEAL

Sometimes pages contain concealed information, such as answers to a quiz. The reveal option lets you disclose the information. After having selected the function, an information line "REVEAL ON/OFF" will be displayed. (See Fig. 38)

Using  $\Delta$  or  $\nabla$ , select ON to reveal the information or OFF to conceal it again.

Press  $\text{OK}$  to resume normal teletext reception.

### TIME PAGE

Your teletext service will inform you, if a time coded page is available. You may have a page (e.g. an alarm page) displayed at a certain time.

- 1 Press OK to select ON for the Time Page setting. The TV programme you were watching before you selected Time Page is restored. An information window will be displayed at

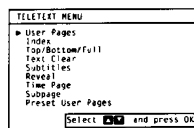


Fig. 34.



Fig. 35.

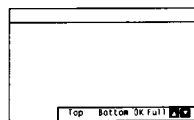


Fig. 36.



Fig. 37.

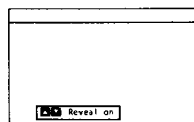


Fig. 38.

To cancel the request  
Select "OFF" for the  
SUBPAGE setting and  
press OK.

If two broadcasting  
stations use the same  
Teletext  
You can preset one  
bank to 2 different  
programme positions.

- 3 To select the desired time, enter four digits for the desired time (e.g. 1800) using the number buttons and press OK. The selected time is displayed at the top in the left-handed corner. At the requested time, the page will be displayed.

Press  $\text{OK}$  to resume normal teletext mode.

### SUBPAGE

You may want to select a particular teletext page from several subpages which are rotated automatically. If you want to select one subpage, follow the operations below:

- 1 Using  $\Delta$  or  $\nabla$ , select ON for the SUBPAGE setting and press OK.
- 2 To select the desired subpage, enter four digits using PROG  $\Delta$  or the number buttons. (e.g. enter 0002 for the second page of a sequence).

## User Page Bank System

You can store up to 30 pages in the "Teletext page bank system". In this way you have quick access to the pages you watch frequently.

### Storing pages

There are 5 "banks" (A to E) for 5 teletext stations. In each bank you can store 6 preferred pages (P1 to P6).

- 1 Press  $\text{OK}$  (if Teletext is not on already) and MENU to show the TELETEXT MENU display.
- 2 Select Preset User Pages with  $\Delta$  or  $\nabla$  and press OK.
- 3 Select the desired bank with  $\Delta$  or  $\nabla$  and press OK. The cursor will go to the first position (P1) of the preferred pages.
- 4 Input the three digits of your first preferred page with the number buttons and press OK. The cursor will go to the second position.
- 5 Repeat step 4 for the other 5 page numbers you want to preset. If you do not want to preset all 6 page numbers available, press OK without inserting any number. After having finished the presetting press OK repeatedly until the cursor appears besides the next bank at the left margin.
- 6 Select Allocate Bank with  $\Delta$  or  $\nabla$  and press OK.
- 7 Select the programme position for which you want to preset pages with  $\Delta$  or  $\nabla$  and press OK. (See Fig. 39)
- 8 Select the desired bank with  $\Delta$  or  $\nabla$  (Banks A to E are available) and press OK.
- 9 Repeat steps 3 to 8 for the other 4 banks available.

### Displaying User Pages

- 1 Select MENU.
- 2 Select User Pages with  $\Delta$  or  $\nabla$  and press OK. A table of the stored preferred pages will be displayed. (See Fig. 40)
- 3 Select the desired page with  $\Delta$  or  $\nabla$  and press OK. The page will be displayed after some seconds.

PRESET USER PAGES						
BANK	P1	P2	P3	P4	P5	P6
A	300	255	456	234	200	119
B	200	120	301	303	550	345
C	100	220	300	444		
D	128	321	255			
E	400	238	240	118	127	

ALLOCATE BANK					
PROG LABEL	BANK	PROG LABEL	BANK		
D0	VHS	-	04	MTV	D
G1	2DF	A	05	SKY	B
D2	ARD	C	06	SAT	C



Select  and press 

Fig. 39.

USER PAGES - BANK B											
PAGE	300	203	500	234	159						

Fig. 40.

To cancel the  
request  
Press OK to select  
"OFF" for the TIME  
PAGE setting.



## 1-8. CONNECTING AND OPERATING OPTIONAL EQUIPMENT


### Connecting Optional Equipment

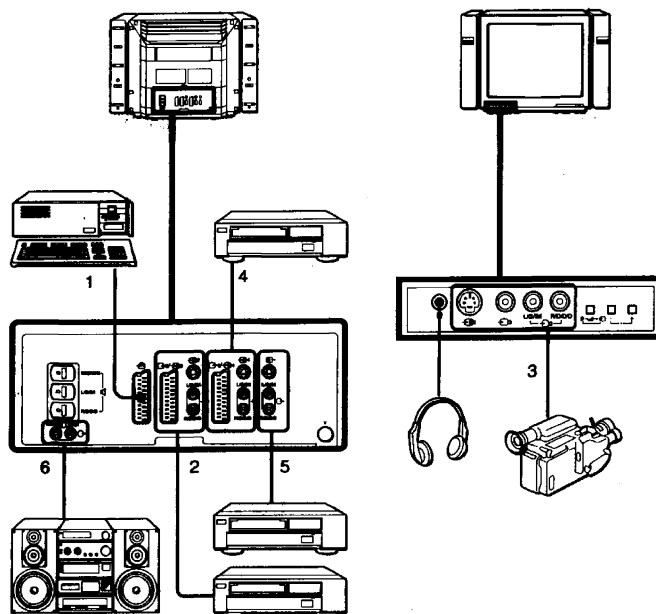
You can connect optional audio-video equipment to this TV such as VTRs, video disc players, and stereo systems.

To connect a VTR using the  terminal  
Connect the aerial output of the VTR to the aerial terminal  of the TV.  
We recommend that you tune in the video signal to programme number "0". For details see "Preset channels manually" on page 37.

If the picture or the sound is distorted  
Move the VTR away from the TV.

**S-video input (Y/C input)**  
Video signals may be separated into Y (luminance or brightness) and C (chrominance) signals. Separating the Y and C signals prevents them from interfering with one another, and therefore improves picture quality (especially luminance). This TV is equipped with 3 S-Video input jacks through which these separated signals can be input directly.

**When connecting a monaural VTR**  
Connect only the white  jack to both the TV and VTR.



Acceptable input signal	Available output signal
1 Normal audio/video and RGB signal	Video/audio from TV tuner
2 Normal audio/video and S video signal	Video/audio from selected source
3 Normal audio/video and S video signal	No outputs
4 Normal audio/video and S video signal	Video/audio displayed on TV screen (monitor out)
5 No inputs	S video/audio signal displayed on TV screen (monitor out)
6 No inputs	Audio signal (variable)

**Selecting input with PROG +/- or number buttons**  
You can preset video input sources to the programme positions so that you can select them with PROG +/- or number buttons. For details, see "Preset channels manually" on page 37.

### Selecting input and output

This section explains how to view the video input picture (of the video source connected to your TV), and how to select the output signal using direct access buttons or the menu system.

#### Selecting input
























Press  repeatedly to select the input source.





The symbol of the selected input source will appear.

To go back to the normal TV picture



Press .

#### Input modes

Symbol	Input signal
	Audio/video input through the  1 connector
	RGB input through the  1 connector
	Audio/video input through the  2/-  2 connector
	S video input through the  2/-  2 or  2 connector
	Audio/video input through  3 and  3 on the front
	S video input through the  3 connectors on the front (4-pin connector)
	Audio/video input through the  4/-  4 connector
	S video input through the  4/-  4 or  4 connector (4-pin connector)

You can also select the input mode using the  and  buttons on the TV. In this case, first select , and then press  buttons to select the input.

























#### Selecting the output

The  2/-  2 connector outputs the source input from the other connectors.

Press  repeatedly to select the output.

The symbol of the selected output source appears.

#### Output modes

Symbol	 2/-  2 connector outputs
1 	The audio/video signal from the  1 connector
2 	The audio/video signal from the  2/-  2 connector
3 	The audio/S video signal from the  2/-  2 connector
3 	The audio/video signal from the  3,  3 connectors
3 	The audio/S video signal from the  3,  3 connectors
4 	The audio/video signal from the  4/-  4 connector
4 	The audio/S video signal from the  4/-  4 connector
TV 	The audio/video signal from the  aerial terminal



### Checking and selecting the input and output sources using the menu

You can display the menu to see which input sources are selected for the TV screen and PIP screen, and which output source is selected. You can also select them on the menu display.

- 1 Select Video Connection with  $\rightarrow$  or  $\leftarrow$  and press OK. The VIDEO CONNECTION menu appears. (See Fig. 41)  
You can see which source is selected for the TV and PIP input, and for the output. If you want to select the input and output on this menu, go on to the next step.
- 2 Select TV Screen (input source for the TV screen), PIP (input source for the PIP screen), or output (output source) with  $\rightarrow$  or  $\leftarrow$  and press OK. One of the source items changes colour. (See Fig. 42)
- 3 Select the desired source with  $\rightarrow$  or  $\leftarrow$ . (See Fig. 43)  
For details about each source, see the table on page 23.
- 4 Press OK.  
The selected source is confirmed, and the cursor appears. (See Fig. 44)
- 5 Repeat steps 2 to 4 to select the source for other inputs or outputs.

### Remote Control of Other Sony Equipment

You can use the TV Remote Commander to control most of Sony remote-controlled video equipment such as: Beta, 8mm or VHS VTRs or video disc players.

#### Tuning the Remote Commander to the equipment

- 1 Set the VTR 1/2/3 MDP selector according to the equipment you want to control:  
VTR 1: Beta or ED Beta VTR  
VTR 2: 8mm VTR  
VTR 3: VHS VTR  
MDP: Video disc player

- 2 Use the buttons indicated in the illustration to operate the additional equipment.

If your video equipment is furnished with a COMMAND MODE selector: set this selector to the same position as the VTR 1/2/3 MDP selector on the TV Remote Commander.

If the equipment does not have a certain function, the corresponding button on the Remote Commander will not operate.

When recording  
When you use the  $\bullet$  (record) button, make sure to press this button and the one to the right of it simultaneously.

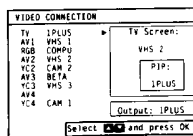


Fig. 41.



Fig. 42.



Fig. 43.

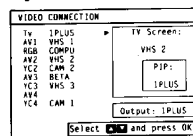


Fig. 44.

## 1-9. FOR YOUR INFORMATION

### Troubleshooting

Here are some simple solutions to problems which may affect the picture and sound.

Problem	Solution
No picture (screen is dark), no sound	<ul style="list-style-type: none"> <li>• Plug the TV in.</li> <li>• Press <math>\odot</math> on the TV. (If <math>\odot</math> indicator is on, press <math>\square</math> or a programme number on the Remote Commander.)</li> <li>• Check the aerial connection.</li> <li>• Check if the selected video source is on.</li> <li>• Turn the TV off for 3 or 4 seconds and then turn it on again using <math>\odot</math>.</li> </ul>
Poor or no picture (screen is dark), but good sound	<ul style="list-style-type: none"> <li>• Press <math>\blacksquare</math> to enter the PICTURE CONTROL menu and adjust BRIGHTNESS, CONTRAST and COLOUR.</li> </ul>
Good picture but no sound	<ul style="list-style-type: none"> <li>• Press <math>\triangle</math> +.</li> <li>• Check loudspeakers connection.</li> <li>• If <math>\llcorner</math> is displayed on the screen, press <math>\llcorner</math>.</li> </ul>
No colour for colour programmes	<ul style="list-style-type: none"> <li>• Press <math>\blacksquare</math> to enter the PICTURE CONTROL menu, select RESET, then press OK.</li> </ul>
Remote Commander does not function.	<ul style="list-style-type: none"> <li>• Replace batteries.</li> </ul>

If you continue to have problems, have your TV serviced by qualified personnel. Never open the casing yourself.



## Television Channel Number Guide (UK model only)

Only the main transmitters are listed. Information regarding the regional sub-relay channel numbers can be obtained by contacting The BBC Engineering Information Dept. (081) 752 5040.

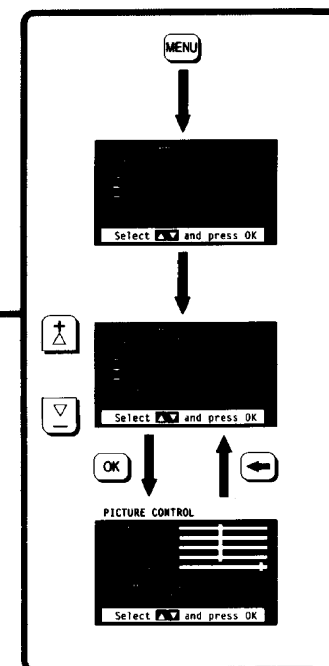
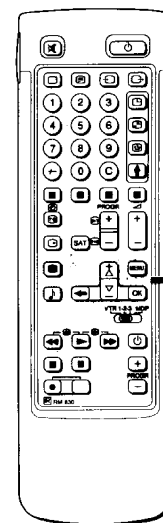
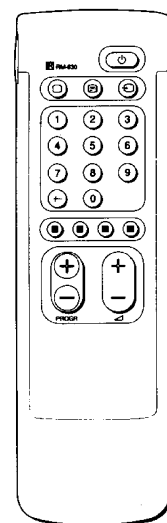
MAIN TRANSMITTERS	BBC1	BBC2	ITV	CH4
<b>London &amp; South East</b>				
Bluebell Hill	40	46	43	66
Crystal Palace	28	33	23	30
Dover	50	56	56	53
Heathfield	49	52	54	57
Oxford	57	63	60	53
<b>South-West</b>				
Beacon Hill	57	63	60	53
Caradon Hill	22	28	25	32
Huntsaw Cross	55	62	59	65
Redruth	51	44	41	47
Stockland Hill	33	28	23	29
Channel Islands				
Fremont Point	51	44	41	47
<b>South</b>				
Hannington	39	45	42	48
Midhurst	61	55	58	68
Rowridge	31	24	27	21
<b>West</b>				
Mendip	58	64	61	54
<b>East</b>				
Sandy Heath	31	27	24	21
Sudbury	51	44	41	47
Tacolneston	62	55	59	65
<b>Midlands</b>				
Ridge Hill	22	28	25	32
Sutton Coldfield	46	40	43	50
The Wrekin	26	33	23	29
Widham	53	64	61	54
<b>Northern Ireland</b>				
Brougher Mountain	22	28	25	32
Divis	31	27	24	21
Limeavady	55	62	59	65
<b>North</b>				
Belmont	22	28	25	32
Emley Moor	44	51	47	41
<b>North-West</b>				
Winter Hill	55	62	59	65
Douglas (IOM)	68	66	48	58
<b>North-East</b>				
Bladale West Moor	33	28	23	29
Caldbeck	30	34	28	32
Chatterton	39	45	42	48
Pontop Pike	56	64	61	54
Laxey (IOM)	58	64	61	54
<b>Scotland</b>				
Angus	57	63	60	53
Black Hill	40	46	43	50
Sandale	22	-	-	-
Caldbeck	-	34	28	32
Craigkelly	31	27	24	21
Darvel	33	28	23	29
Dumfries	22	28	25	32
Elshail	33	28	23	29
Keelyley Hill	40	46	43	50
Knock More	33	28	23	29
Rosemarkie	39	45	42	48
Rumster Forest	31	27	24	21
Selkirk	55	62	59	65
<b>Wales</b>				
Blaenphyl	31	27	24	21
Carmel	57	63	60	53
Llanddona	57	63	60	53
Moel-y-Parc	52	45	48	42
Presely	46	40	43	50
Wenwae	44	51	41	47

TV - Funktionen  
TV operation  
TV - bediening  
Utilisation TV  
Funzioni TV

PIP - Funktionen  
PIP operation  
PIP - bediening  
Utilisation PIP  
Funzioni PIP



Video - Funktionen  
Video operation  
Video - bediening  
Utilisation video  
Funzioni video





KV-E2533E/E2933E/E3433E  
KV-E2532U/E2932U  
RM-830 RM-830 RM-832

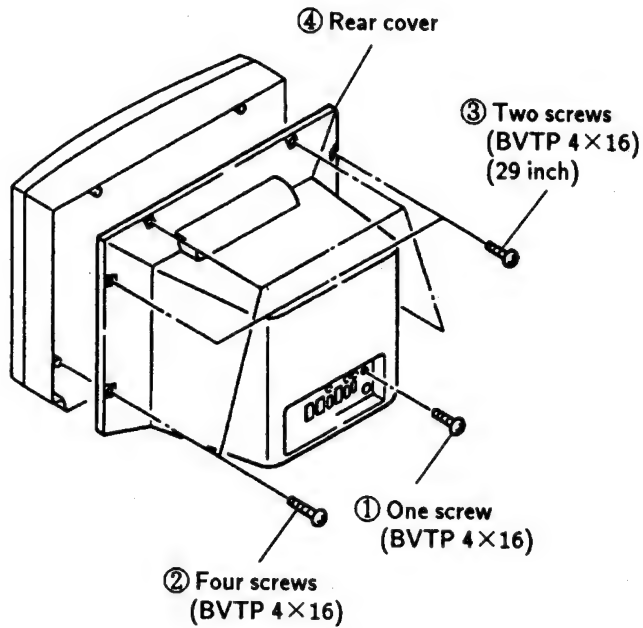
## MEMO



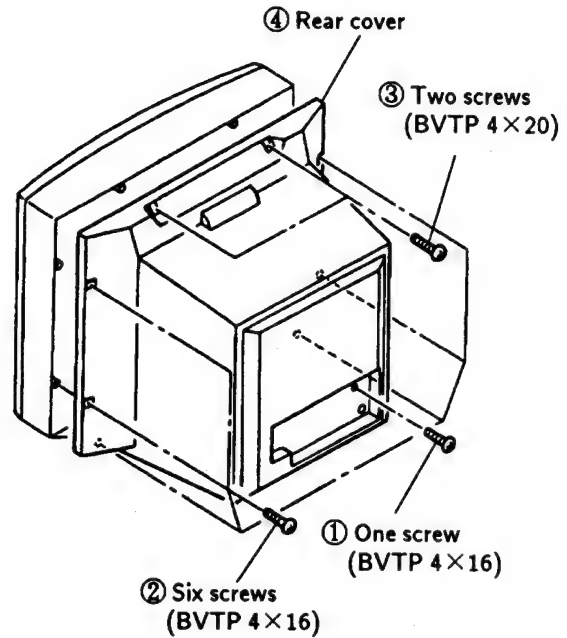
## SECTION 2 DISASSEMBLY

KV-E2533E/E2933E/E3433E  
KV-E2532U/E2932U  
RM-830 RM-830 RM-832

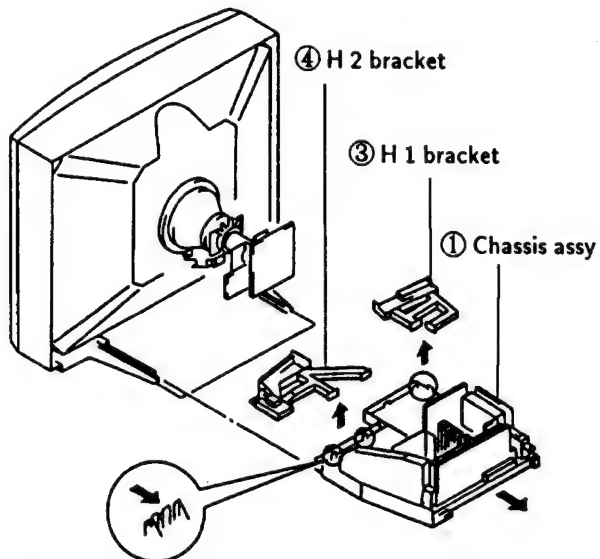
### 2-1-1. REAR COVER REMOVAL (25 inch, 29 inch)



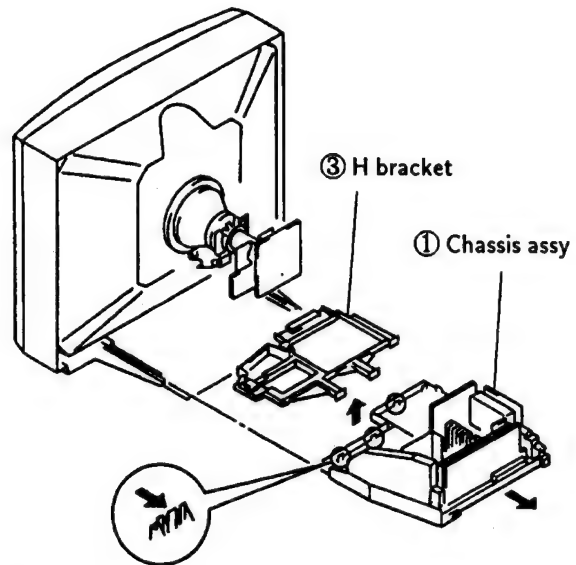
### 2-1-2. REAR COVER REMOVAL (34 inch)



### 2-2-1. CHASSIS ASSY REMOVAL (25 inch, 29 inch)



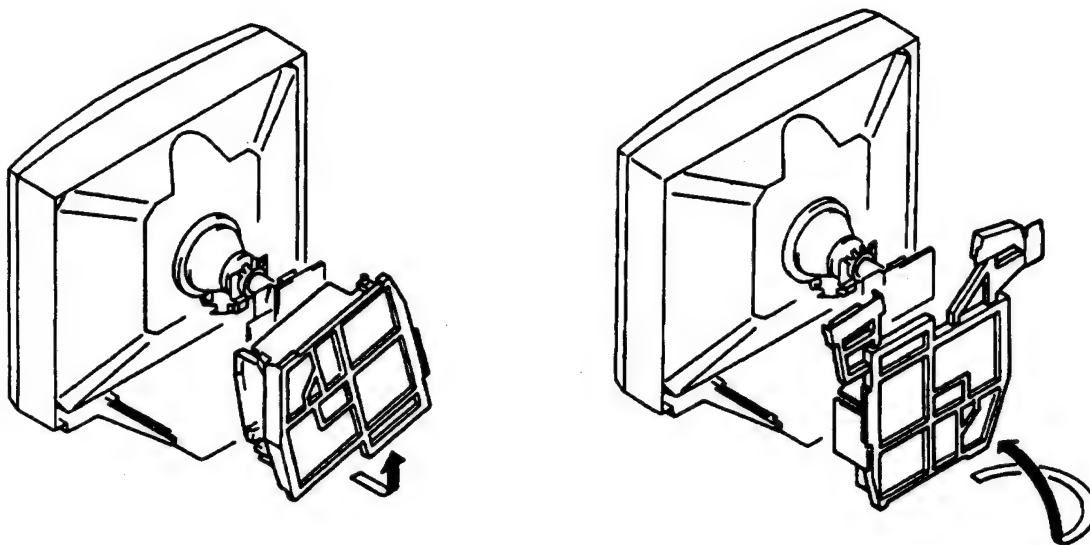
### 2-2-2. CHASSIS ASSY REMOVAL (34 inch)



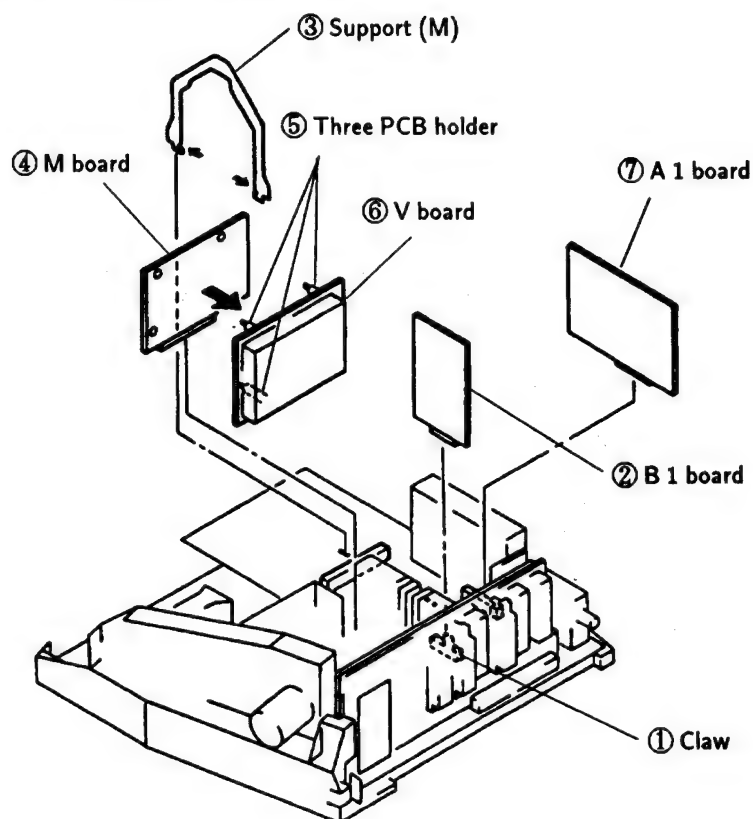


## 2-3. SERVICE POSITION

- ※ Remove the H bracket from the main chassis assy and then perform the following servicing.  
(Refer to 2-2. CHASSIS ASSY REMOVAL)

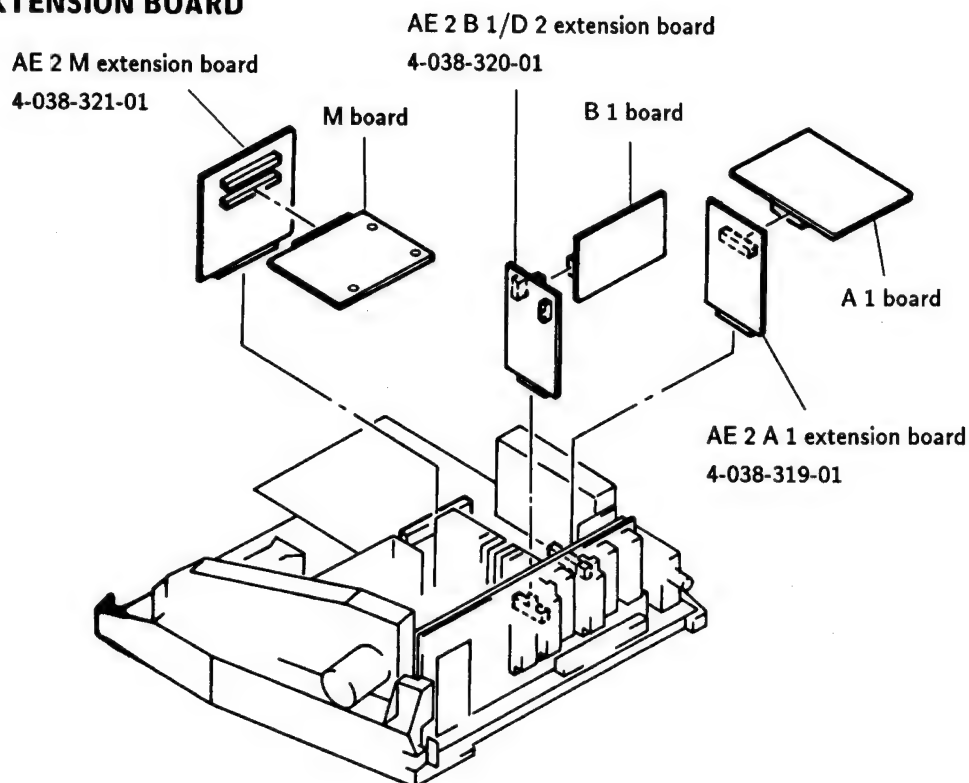


## 2-4. B 1, M, V AND A 1 BOARDS REMOVAL

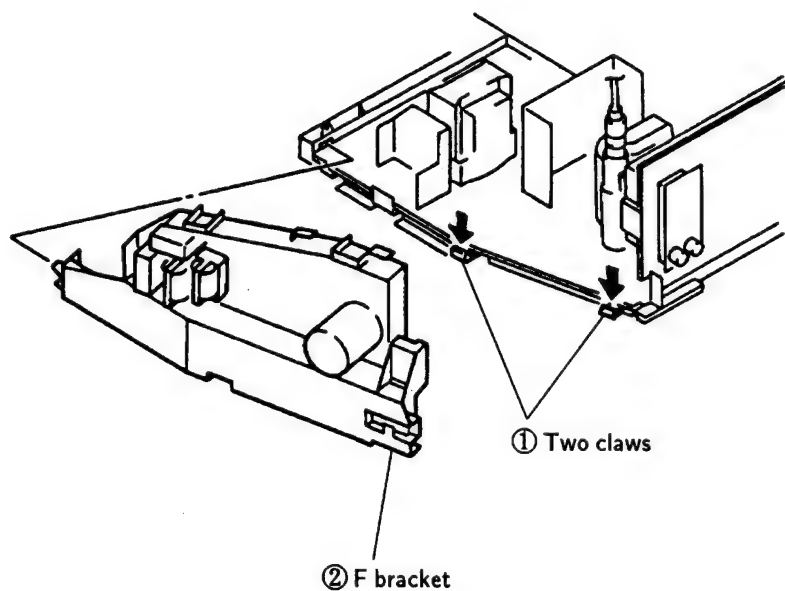




## 2-5. EXTENSION BOARD

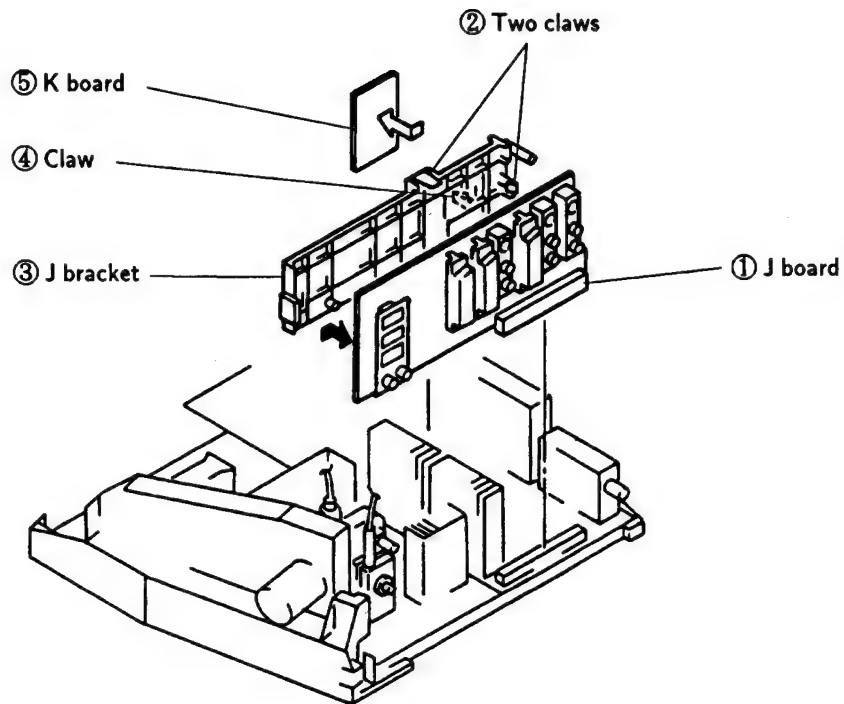


## 2-6. F BRACKET REMOVAL

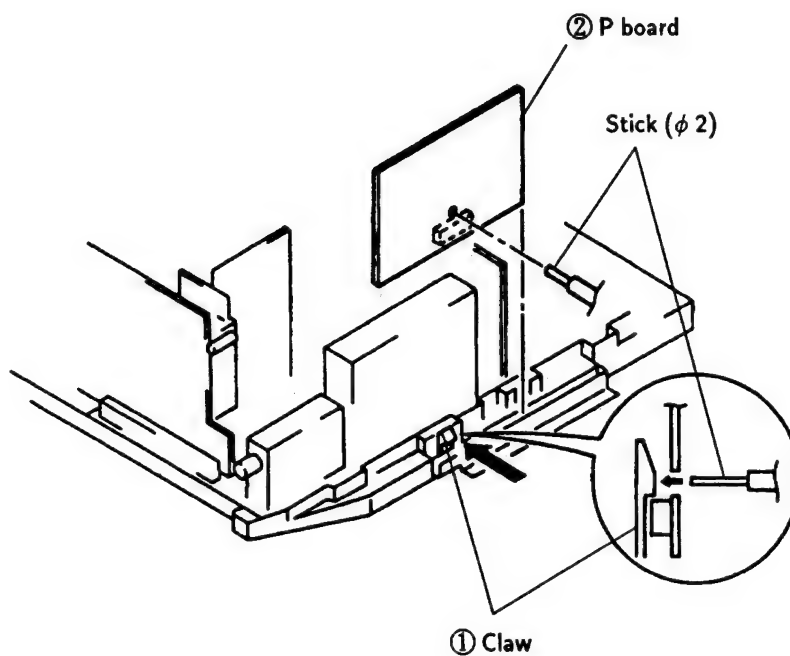




## 2-7. J AND K BOARDS REMOVAL



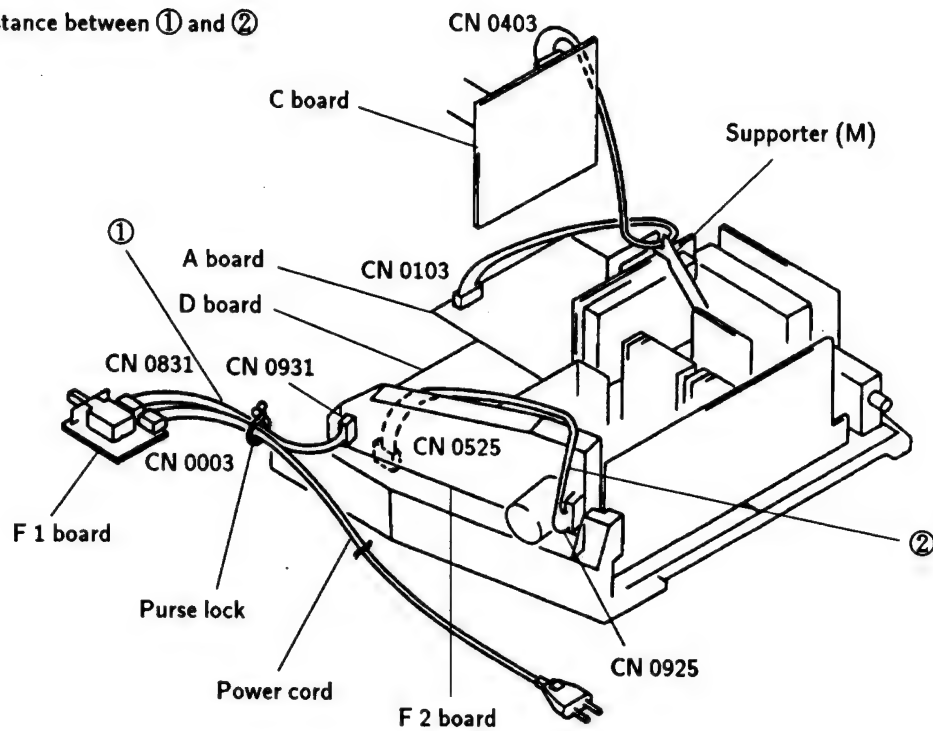
## 2-8. P BOARD REMOVAL



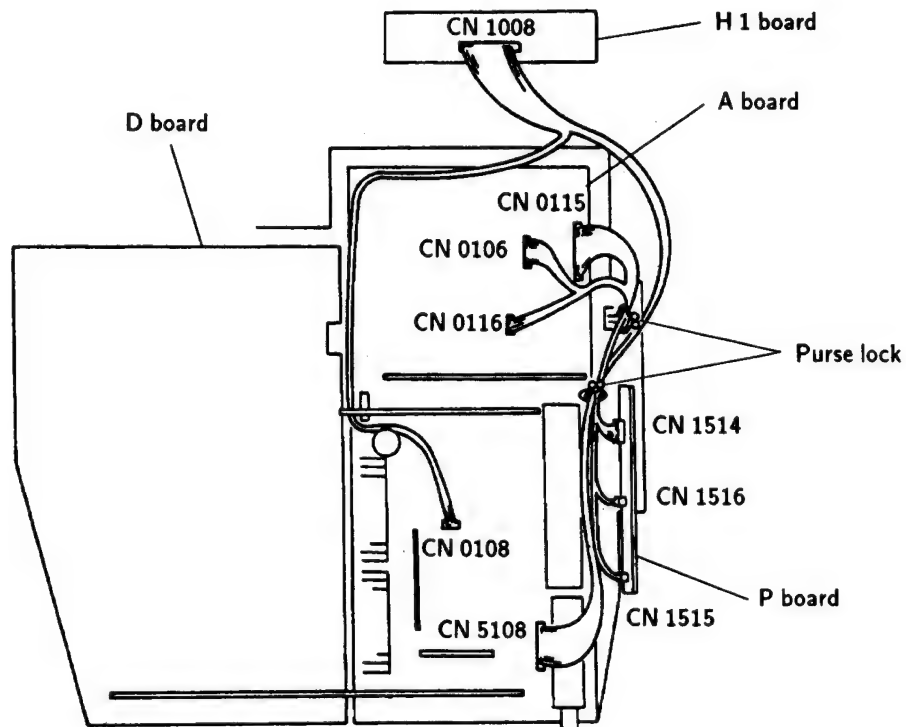


## 2-9-1. WIRE ROD

※ Keep distance between ① and ②

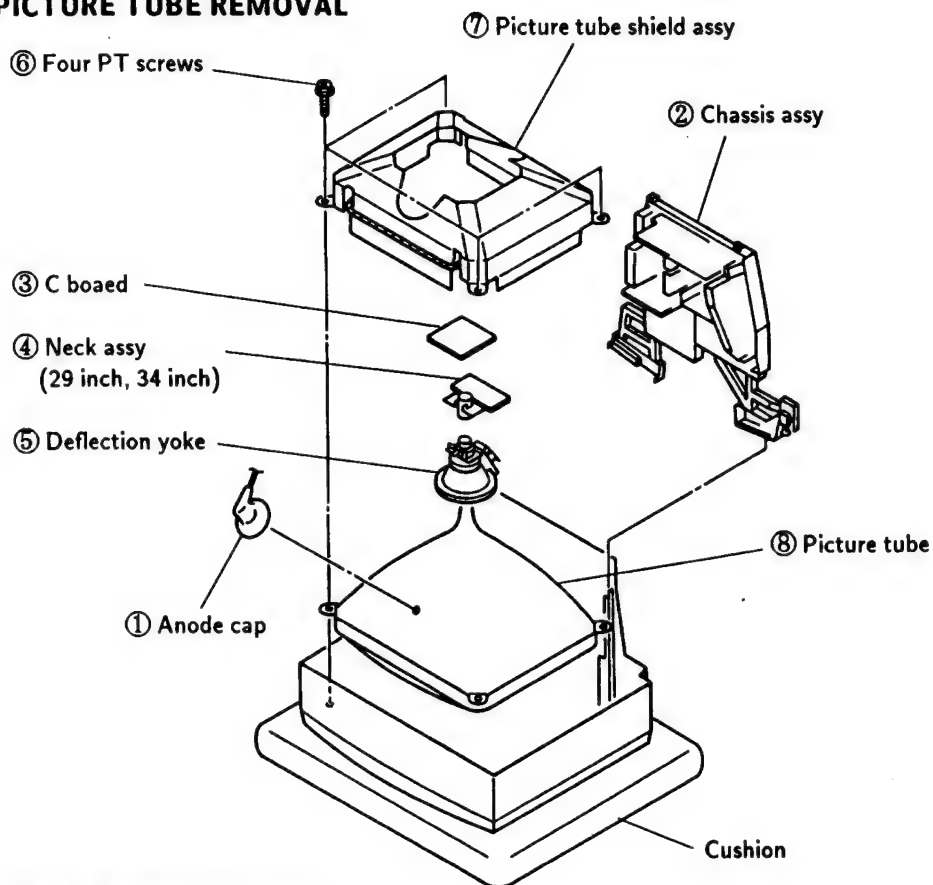


## 2-9-2. WIRE ROD





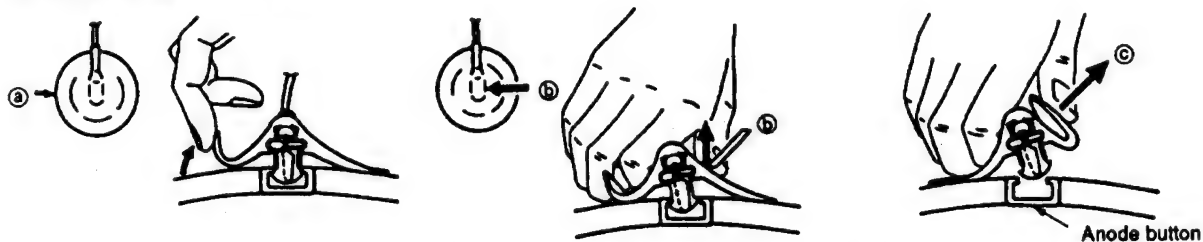
## 2-10. PICTURE TUBE REMOVAL



### • REMOVAL OF ANODE-CAP

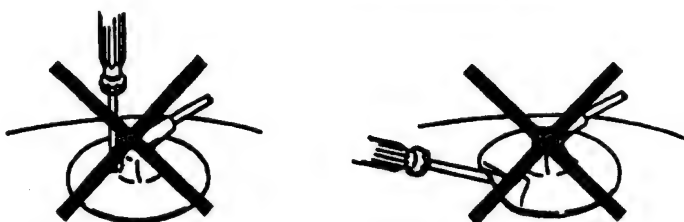
NOTE : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon painted on the CRT, after removing the anode.

### • REMOVING PROCEDURES



### • HOW TO HANDLE AN ANODE-CAP

- ① Don't hurt the surface of anode-caps with sharp shaped material!
- ② Don't press the rubber hardly not to hurt inside of anode-caps!  
A material fitting called as shatter-hook terminal is built in the rubber.
- ③ Don't turn the foot of rubber over hardly!  
The shatter-hook terminal will stick out or hurt the rubber.





## SECTION 3

### SET-UP ADJUSTMENTS

- When complete readjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there is specific instruction to the contrary, carry out these adjustments with the rated power supply.
- Unless there is specific instruction to the contrary, set the controls and switches this way :
  - ⊙ Contrast ..... 80% (or remote control normal)
  - ⊙ Brightness ..... 50%

#### Preparations :

- In order to reduce the influence of geomagnetism on the set's picture tube face it east or west.
- Switch on the set's power and degauss with the degausser.

#### 3-1. BEAM LANDING

1. Input the white signal with the pattern generator.
  - Contrast } normal
  - Brightness }
2. Position neck assy as shown in Fig.3-2.
3. Set the pattern generator raster signal to red.
4. Move the deflection yoke to the rear and adjust with the purity control so that the red is at the center and the blue and the green take up equally sized areas on each side. (See Fig.3-1 - 3-3)
5. Move the deflection yoke forward and adjust so that entire screen is red. (See Fig.3-1)
6. Switch the raster signal to blue, then to green and verify the condition.
7. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws.
8. If the beam does not land correctly in all the corners, use a magnet to adjust it. (See Fig.3-4)

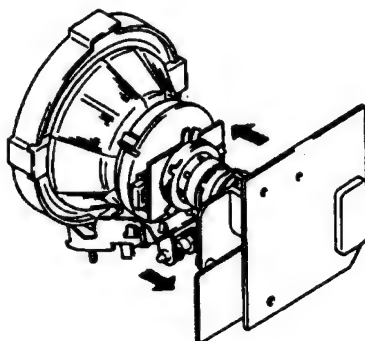


Fig.3-1

- Carry out the following adjustments in this order :
  1. Beam landing
  2. Convergence
  3. Focus
  4. White balance

**Note:** Testing equipment required.

1. Color bar/pattern generator
2. Degausser
3. DC power supply
4. Digital multimeter
5. Oscilloscope

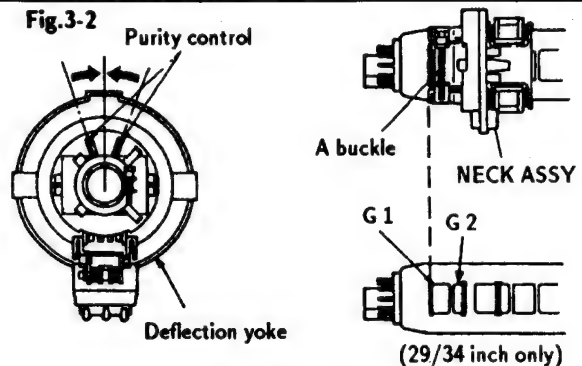


Fig.3-3

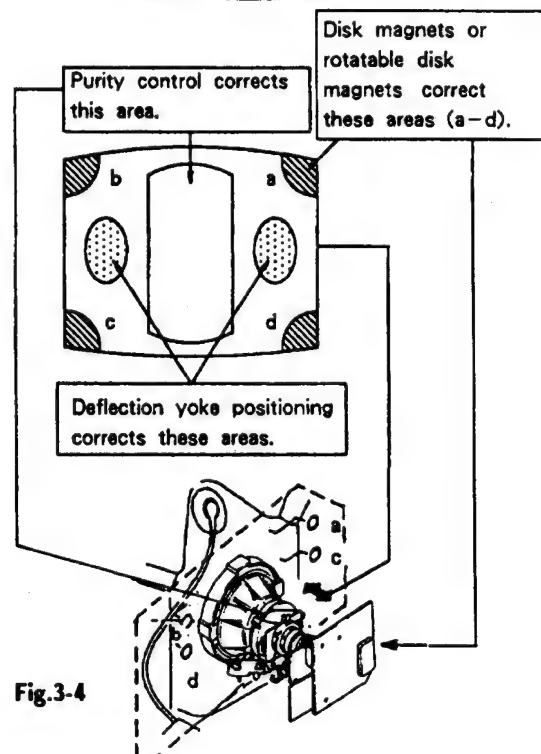
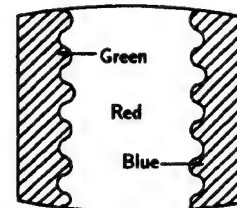


Fig.3-4

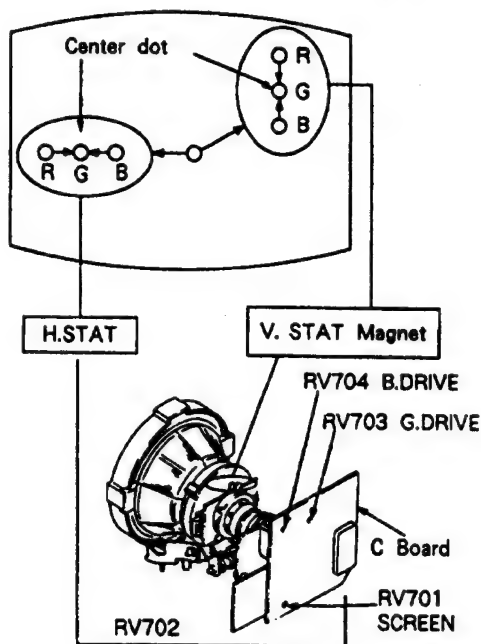


### 3-2. CONVERGENCE

#### Preparations :

- Before starting this adjustment, adjust the focus, horizontal size, and vertical size.
- Minimize the brightness setting.
- Provide dot pattern.

#### (1) Horizontal and vertical static convergence

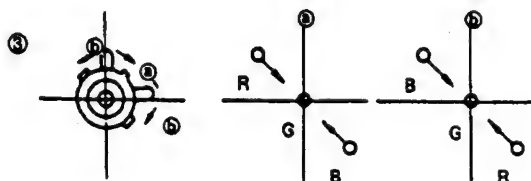
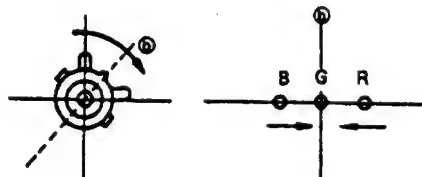
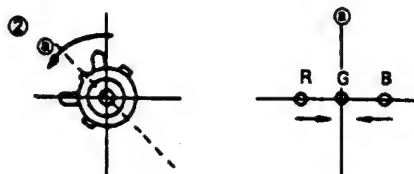
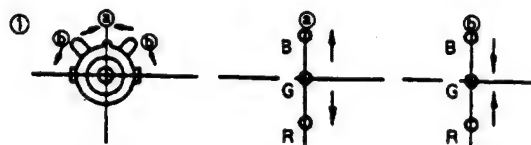


1. (Moving horizontally), adjust the H.STAT control so that the red, green, and blue points are on top of each other at the center of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green, and blue points are on top of each other at the center of the screen.
3. If the H.STAT variable resistor cannot bring the red, green, and blue points together at the center of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V. STAT magnet in the manner given below.  
(In this case, the H.STAT variable resistor and the V. STAT magnet influence each other)

- Tilt the V. STAT magnet and adjust the static convergence by opening or closing the V. STAT magnet.

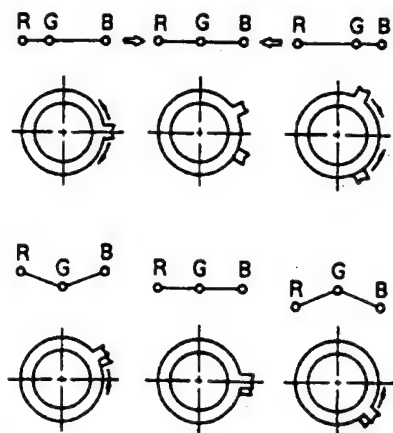


4. If the V. STAT magnet is moved in the direction of the ② and ③ arrows, the red, green, and blue points move as shown below.

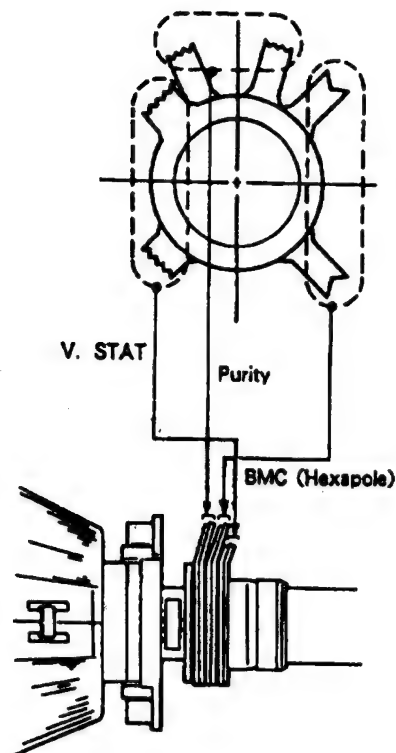




● Operation of BMC (Hexapole) Magnet



- The respective dot positions resulting from moving each magnet interact, so be sure to perform adjustment while tracking.  
Use the H.STAT VR to adjust the red, green, and blue dots so they coincide at the center of screen (by moving the dots in the horizontal direction).

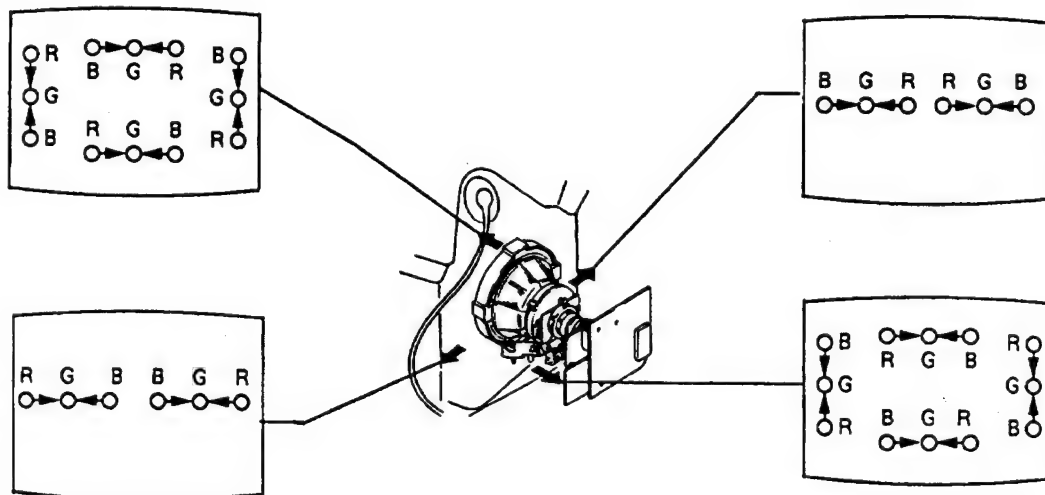


(2) Dynamic convergence adjustment

**Preparations:**

- Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence.
1. Slightly loosen the deflection yoke screws.

2. Remove the deflection yoke spacer.
3. Move the deflection yoke as shown in the figure below and optimize the convergence.
4. Tighten the deflection yoke screws.
5. Install the deflection yoke spacer.



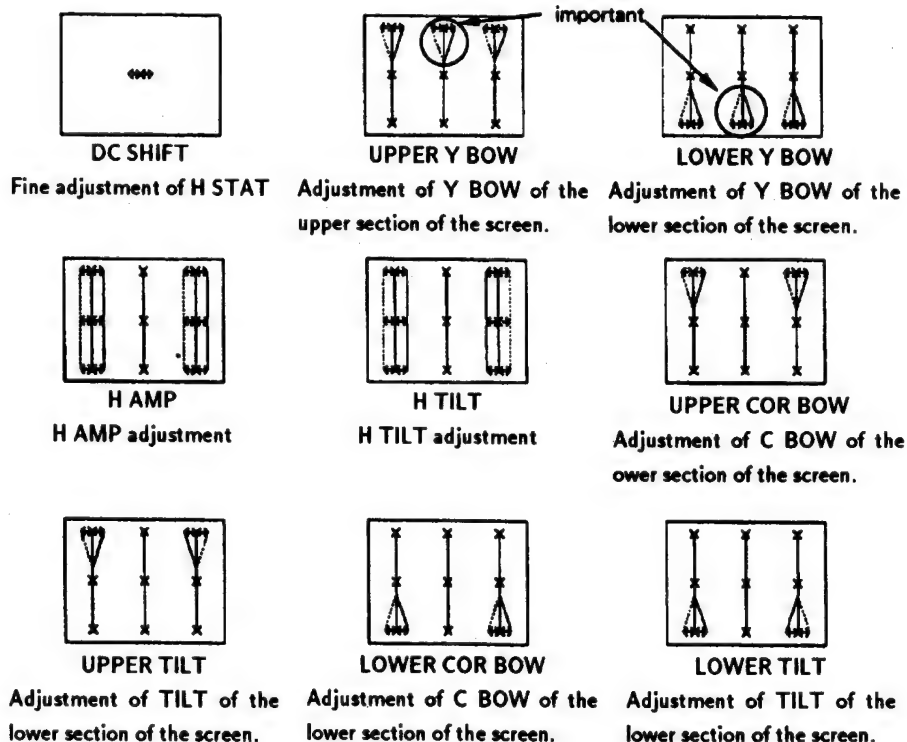


**(3)Dynamic convergence adjustment**  
**(34 inch only)**

1. Adjust horizontal convergence located at the center position of the screen with H STAT VR.
2. Enter into service mode. (Refer to the section 2 "Electrical Adjustment" on how to enter service mode.)
3. Select CXA 1526 on menu.
4. Select each item and adjust them so that each item attains optimal convergence.
5. Press **OK** button to write the data.

CXA 1526		
1	DC SHIFT	(32)
2	UPPER Y BOW	(4)
3	LOWER Y BOW	(5)
4	H AMP	(48)
5	H TILT	(29)
6	UPPER COR BOW	(32)
7	UPPER TILT	
8	LOWER COR BOW	(32)
9	LOWER TILT	(32)

R.G.B.dots movement on the screen of the set

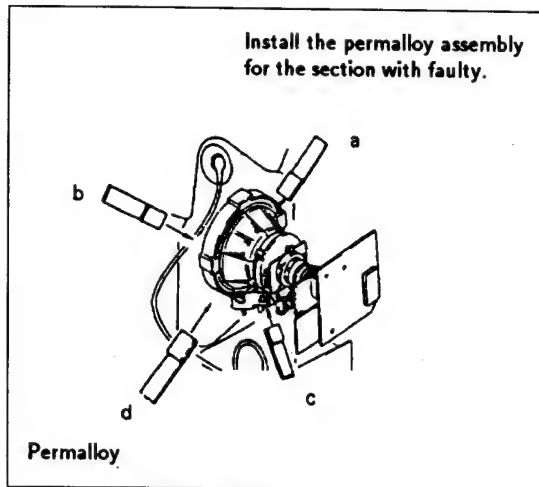
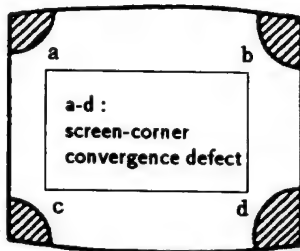


At this time, H.TILT, H.AMP, UPPER TILT, UPPER COR, BOW, LOWER TILT, and LOWER COR, BOW look like all the same, but the movement of the right and left dots are reverse in all the TILT system. (Pay attention to the dotted lines.)



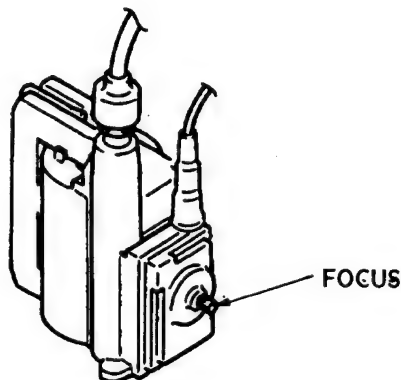
#### (4) Screen corner convergence

If you cannot adjust corner convergence properly, correct them with permalloy.



#### 3-3. FOCUS

Adjust the focus to optimize the screen.



#### 3-4. WHITE BALANCE

##### Screen G2 Setting

1. Input the dot signal from the pattern generator.
2. Set the picture brightness control to its lowest level.
3. Apply 180V DC to the R,G, and B cathodes with an external power supply.
4. While watching the picture, adjust G 2 control RV 701 (Screen) to the point just before the return lines disappear.

##### White balance adjustment

1. Receive all-white signal.
2. Enter into service mode. (Refer to the section 4 "Electrical Adjustment" to how to enter service mode.)
3. Select CXA 1587 on menu.

09	SUB BRIGHT	ADJ.
10	SUB HUE	7
11	VM LEVEL	2
12	NR LEVEL	0
13	ABL MODE	0
14	G-DRIVE	ADJ.
15	B-DRIVE	ADJ.
16	G-AUTO CUT OFF	ADJ.
17	B-AUTO CUT OFF	ADJ.
18	R-MANUAL CUT OFF	ADJ.
19	G-MANUAL CUT OFF	ADJ.
20	B-MANUAL CUT OFF	ADJ.

4. Set picture to MAX.
5. Adjust G-DRIVE B-DRIVE with buttons so that the white balance becomes optimum.
6. Press **OK** button to write the data for each item.
7. Set picture to MIN.
8. Adjust G-AUTO CUT OFF, B-AUTO CUT OFF, R-MANUAL CUT OFF, G-MANUAL CUT OFF and B-MANUAL CUT OFF with buttons so that the white balance becomes optimum.
9. Press **OK** button to write the data for each item.



## SECTION 4

### CIRCUIT ADJUSTMENTS

#### 4-1. ELECTRICAL ADJUSTMENTS

Service adjustment to this model can be performed with the supplied remote commander, RM-830 (for 25/29 inch) or RM-830 (for 34 inch)

##### HOW TO ENTER INTO SERVICE MODE

1. Turn on the main power switch of the set while pressing any two buttons on the front panel.

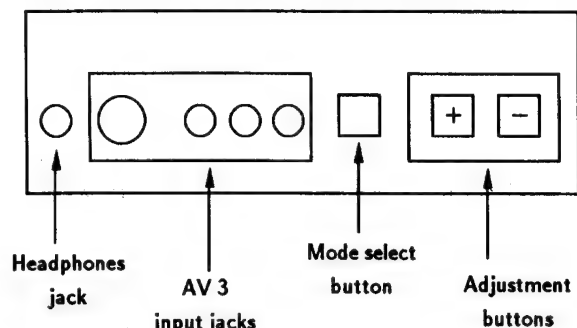


Fig.4-1

2. "TT" will appear on the upper right corner of the screen.

Command operation in service mode

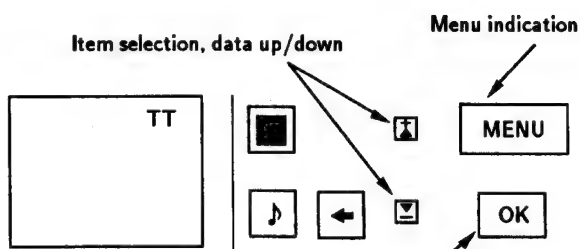


Fig.4-2

Fig.4-3

3. Press the **MENU** button of the commander to get the menu on screen.

MAIN MENU	
Programme Table	
Video Connection	
Picture Control	
Sound Control	
Timer	
Preset	
Language	
> DEMO	
Select < > and press OK	

Fig.4-4

4. Press the **▲** and **▼** buttons of the commander and move > to DEMO.
5. Press **OK** button to proceed to the next menu.
6. The menu of fig.4-5 will appear on screen. Select **DEVICE** corresponding to the adjustment item from the table on next page.

DEVICE
Initialize
> CXA 1587
CXD 2018
TDA 9145
TDA 1526
TDA 6612
CXA 7948 A
P/P service
Select < > and press OK

Fig.4-5

7. If adjustment item is CXA 1587, press the **▼** button and move > to CXA 1587.

##### CXA 1587 S

Item No.	Adjustment item	Data Amount
01	PICTURE	3
02	COLOR	1
03	BRIGHT	1
04	HUE	1
05	SHARPNESS	7
06	RGB PICTURE	3
07	SUB CONTRAST	ADJ.
08	SUB COLOR	ADJ.
> 09	SUB BRIGHT	ADJ.
10	SUB HUE	7
11	VM LEVEL	2
12	NR LEVEL	0
13	ABL MODE	0
14	G-DRIVE	ADJ.
15	B-DRIVE	ADJ.

8. Press **OK** button to get the next selection menu.
9. Press **▼** button and move > to the adjustment item and press **OK** button.
10. Press the **▲** and **▼** buttons to change the data in order to comply each standard.
11. Press **OK** button to write data.
12. Turn off the power to quit service mode when completing the adjustment.



CXA 1587 S

01	PICTURE	53
02	COLOR	31
03	BRIGHT	31
04	HUE	31
05	SHARPNESS	7
06	RGB PICTURE	13
07	SUB CONTRAST	ADJ.
08	SUB COLOR	ADJ.
09	SUB BRIGHT	ADJ.
10	SUB HUE	7
11	VM LEVEL	2
12	NR LEVEL	0
13	ABL MODE	0
14	G-DRIVE	ADJ.
15	B-DRIVE	ADJ.
16	G-AUTO CUT OFF	ADJ.
17	B-AUTO CUT OFF	ADJ.
18	R-MANUAL CUT OFF	ADJ.
19	G-MANUAL CUT OFF	ADJ.
20	B-MANUAL CUT OFF	ADJ.
21	GAMMA LEVEL	0
22	DC TRANSFER RATIO	3
23	DINAMIC PICTURE	0
24	Y FILTER ADJ	ADJ.
25	Y DELAY TIME	15
26	Y DELAY SWITCH 1	0
27	Y DELAY SWITCH 2	1
28	SHARPNESS LIMIT	ON
29	ALL BLK	OFF
30	H SHIFT	32
31	DAC TEST	ON
32	PRE/OVER SHOOT	7
33	SHARPNESS FO	2
34	SUB SHARPNESS	3
35	R MUTE	OFF
36	G MUTE	OFF
37	B MUTE	OFF

38	AGING 1	OFF
39	AGING 2	OFF
40	AKB OFF	ON
41	INHIBIT RGB	OFF
42	FORCED RGB	OFF
43	V/2 V	OFF
44	AXIS	PAL
45	HUE SW	OFF
46	V EXTENTION	OFF
47	AFC 1	1
48	AFC 2	0
49	AFC OFF	ON
50	REF.POSITION	0

CXD 2018 Q

01	V SIZE	ADJ.
02	V SHIFT	ADJ.
03	S CORRECTION	ADJ.
04	V LINEARITY	ADJ.
05	H SIZE	ADJ.
06	PIN AMP	ADJ.
07	TILT	ADJ.
08	UPPER CORNER	ADJ.
09	LOWER CORNER	ADJ.
10	V BOW	ADJ.
11	ANGLE	ADJ.
12	HV COMP.V	13
13	HV COMP.H	8
14	FRAME SHIFT	OFF
15	FREE RUN 60 Hz	OFF
16	SYSTEM 60 Hz	OFF
17	ASPECT WIDE	OFF
18	DOUBLE SCAM	OFF
19	INTERLACE	ON
20	H SHIFT	32
21	N/S CORRECTION	ADJ.

Typical Value (OSD based)when receiving PAL Philips pattern.

CXA 1526		ADJ.
1	DC SHIFT	(32)
2	UPPER Y BOW	(4)
3	LOWER Y BOW	(5)
4	H.AMP	(48)
5	H TILT	(29)
6	UPPER COR BOW	(32)
7	UPPER TILT	(32)
8	LOWER COR BOW	(32)
9	LOWER TILT	(32)

34 inch only

TDA 6612	ADJ.
Stereo-Separation	(30)

Should be adjusted twice 4 : 3 and 16 : 9 mode.



#### **Y FILTER ADJUSTMENT**

1. Input PAL RED pattern.
2. Connect an oscilloscope to CN 0403 ① pin (R OUT) on the C board.
3. Enter into service mode and press 3, 8.
4. Adjust data by  $\Delta$  or  $\nabla$  to minimize the chroma element of CN 0403 ① pin.

#### **SUB BRIGHTNESS ADJUSTMENT**

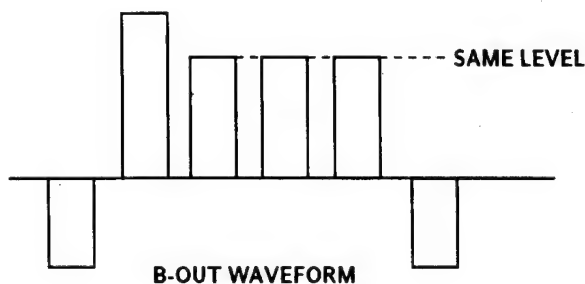
1. Input Phillips pattern.
2. Enter into service mode and press 23.
3. Adjust data so that 0-IRE of the grey scale and CUT -OFF 20-IRE glitter slightly.

#### **SUB CONTRAST ADJUSTMENT**

1. Input a video that contains small 100% area on the Black Back ground.
2. Enter into service mode and press 01 to have PIC max followed by 21.
3. Adjust data so that 2.5 Vp-p can be obtained at ① CN 0403 (R out).

#### **SUB COLOR ADJUSTMENT**

1. Input PAL color bar.
2. Connect an oscilloscope to CN 0403 ③ pin (B OUT) on the C board.
3. Enter into service mode and press 22 of CXA 1587, 8 SUB COLOR.
4. Adjust data so that the right sides of the waveform will be the same.



#### **STEREO-SEPARATION ADJUSTMENT**

1. Input 1 kHz stereo signal to the L-ch and 400 Hz stereo signal to the R-ch.
2. Enter into service mode and press 19.
3. Adjust data so that sound does not leak to the R-ch and the L-ch.

#### **DRIVE AND CUT OFF**

See direct test mode list attached and refer to sub brightness or such for adjustment method.

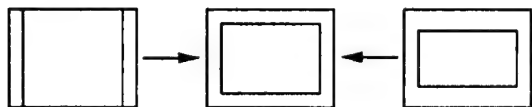


# DEFLECTION SYSTEM ADJUSTMENT

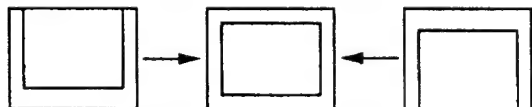
1. Enter into service mode and select CXD 2018.
2. Select and adjust each item in order to get an optimum image.

01	V SIZE	ADJ.
02	V SHIFT	ADJ.
03	S CORRECTION	ADJ.
04	V LINEARITY	ADJ.
05	H SIZE	ADJ.
06	PIN AMP	ADJ.
07	TILT	ADJ.
08	UPPER CORNER	ADJ.
09	LOWER CORNER	ADJ.
10	V BOW	ADJ.
11	ANGLE	ADJ.
12	HV COMP.V	13
13	HV COMP.H	8
14	FRAME SHIFT	OFF
15	FREE RUN 60 Hz	OFF
16	SYSTEM 60 Hz	OFF
17	ASPECT WIDE	OFF
18	DOUBLE SCAM	OFF
19	NON INTERLACE	ON
20	H SHIFT	32
21	N/S CORRECTION	ADJ.

## V SIZE



## V SHIFT



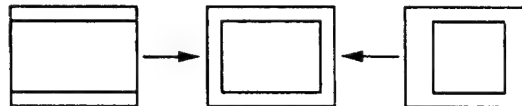
## S CORRECTION



## V LINEARITY



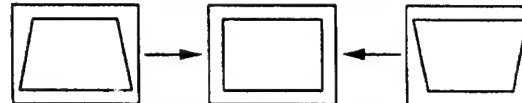
## H SIZE



## PIN AMP



## TILT



## UPPER CORNER PIN



## LOWER CORNER PIN



## V BOW



## ANGLE



## H SHIFT



3. Press **OK** button to write the data.

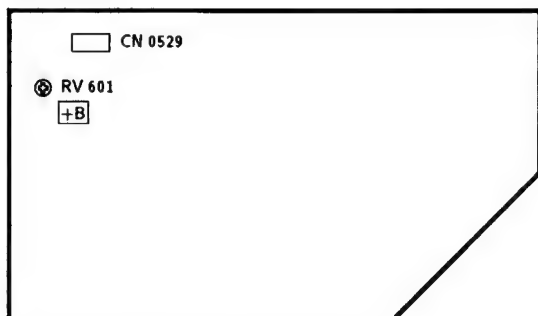
If menu display may disturb the adjustment press **⏏** to clear, to resume it, press **⏏** again.



## 4-2. VOLUME ELECTRICAL ADJUSTMENTS

### +B (+135 V) ADJUSTMENT (RV 601)

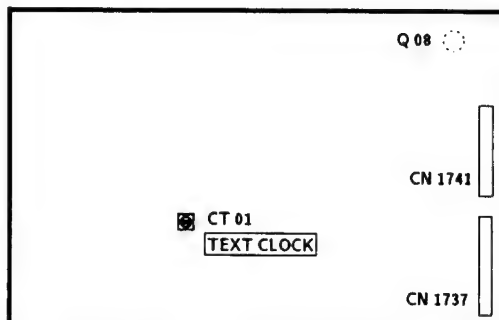
#### D BOARD



1. Turn on the power of the TV set.
2. Connect a digital multi-meter to ① pin of CN 0529 on D board.
3. Adjust RV 601 on D board to +135 V.

### TEXT CLOCK ADJUSTMENT (CT 01)

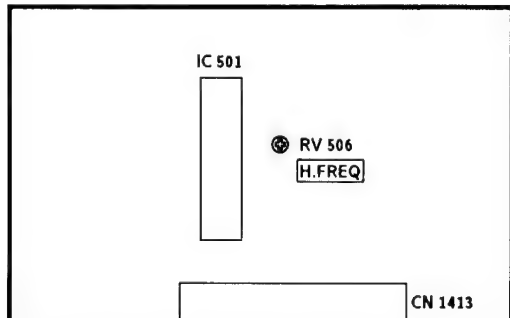
#### V BOARD



1. Get TEXT MENU on screen.
2. Connect GND and the base of Q 08 on V board.
3. Adjust CT 01 on V board so that the MENU stands still as much as possible.

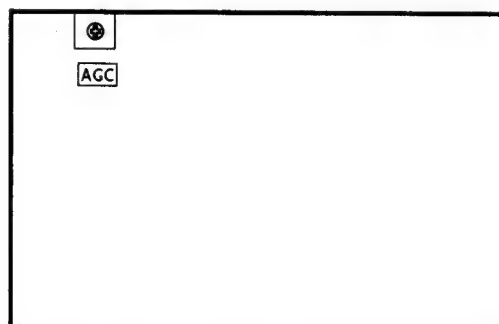
### H.FREQ ADJUSTMENT (RV 506)

#### M BOARD



1. Connect GND to ⑫ pin of IC 501 on M board.
2. Connect a frequency counter to ④ pin of IC 501.
3. Adjust RV 506 on M board to 15,625+100 Hz.
4. Remove ⑫ pin of IC 501 from GND.

### AGC ADJUSTMENT (IF BLOCK)



1. Receive off-air signal.
2. Adjust AGC VR so that there is no snow noise and cross-modulation.
3. Change receiving channel and confirm status.



#### 4-3. TEST MODE 2 :

Is available by pressing Test button two times, OSD "TT" appears. The functions described bellow are available by pressing the two numbors. To release the Test Mode 2, press two times 0, or switch TV in Standby Mode.

00	switch Test Mode 2 off
01	picture maximum
02	picture minimum
03	Volume 35%
04	Volume 50%
05	Volume 65%
06	Volume 80%
07	Aging Condition (Volumin., Picture max., Brightness max., Aging 2 Mode of CXA 1587, TDA 2595 is locked to CXA 1587 via PIN 34 of $\mu$ -Con.)
08	Shipping Condition (Analog Values are RESET due to factory setting, Prog 1 is selected, TT Mode is switched off)
09	dummy
10	Tenth entry is deleted
11	Balance
12	Hue
13-14	dummy
15	Read factory setting from NVM Reads Volume, Balance, Treble, Bass, Brightness, Contrast, Hue, Sharpness, Colour values from ROM to the actual used values (Last Power Memory)
16	Save actual used values as RESET values Memorize actual used values Balance, Treble, Bass, Hue, Sharpness at RESET position in NVM
17	Preset Lavel for AV Sources
18	dummy
19	Stereo Seperation
20	Tenth entry is deleted
21	Sub Contrast
22	Sub Colour
23	Sub Brightness
24-29	dummy

30	Tenth entry is deleted
31	Green Drive
32	Blue Drive
33	Green Cut Off (Auto Cut Off)
34	Blue Cut Off (Auto Cut Off)
35	Red Cut Off (Manual Cut Off) (Auto Cut Off is switched off)
36	Green Cut Off (Manual Cut Off) (Auto Cut Off is switched off)
37	Blue Cut Off (Manual Cut Off) (Auto Cut Off is switched off)
38	Y-Filter adjustment (Trap is switched off and TDA 9145 is switched in forced NTSC Mode)
39	dummy
40	Tenth entry is deleted
41	Default setting of CXA 1587 (Only in Plog 99 available)
42	Default setting of CXA 2018 (Only in Plog 99 available)
43	Default setting of CXA 1526 (Only in Plog 99 available)
44	(all Port High) Not yet
45	(all Port High) Not yet
46-48	dummy
49	Erease the NVM Testbyte (this byte detects already stored NMV's) After selecting this function, switch TV Off and On → the NVM will be preset by $\mu$ -Controller. (Not the channel data)

Note : For No. 35, 36, 37 and 38 special pressing (AKB, forced Color Mode, Trap) is selected. After selecting a new Test Mode Number, the AKB is switched ON, the Trap is switched On and TDA 9145 is switched to Auto Search Mode.

In Test Mode 2 the Menu display is switchable by Speaker-Off button.



#### 4-4. ERROR MESSAGE

Self diagnosis system can operates as follows.

- When MP can't get the acknowledge back from the device, LED starts flashing according to the table as attached.

In case of more errors in parallel, the blinking error shows max. Priority according to the error number (e.g. error 2 and error 5 appears together, then LEDs shows error 2) .

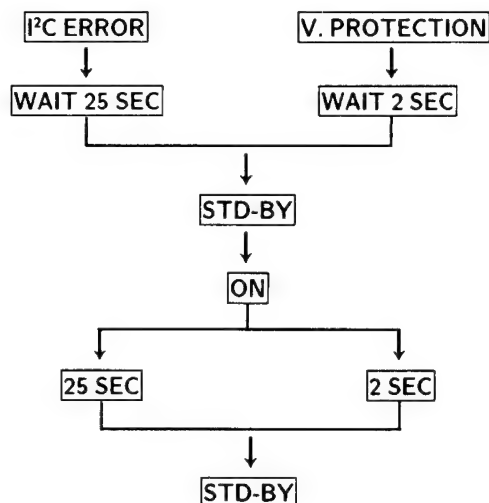


TABLE OF ERRORS

ERROR COUNT	IC TYPE	FUNCTION
1	I <sup>2</sup> C BUS	SDA low
2	X 24 C 16	EEPROM
3	SDA 3202	Tuner PII
4	TDA 9145	Colour decoder
5	CXA 1587	RGB/Jungle
6	TDA 6612	Sound processor
7	CXD 2018	V deflection
8	CXA 1545	AV switch
11	SDA 5248	Text
13		V protection

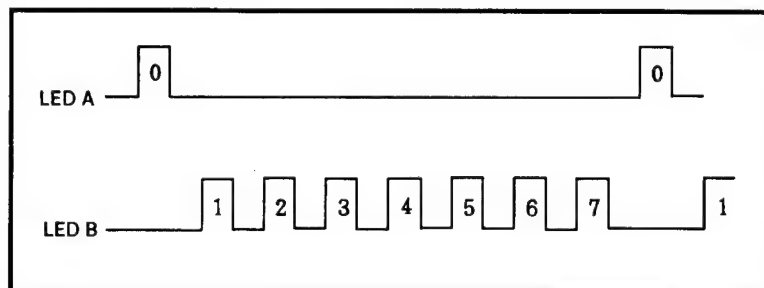
Stand by LED  
blinking

No IK return

#### 4-5. ERROR I<sup>2</sup>C BUS DIAGNOSIS SYSTEM IN AE 2 CHASSIS AVAILABLE

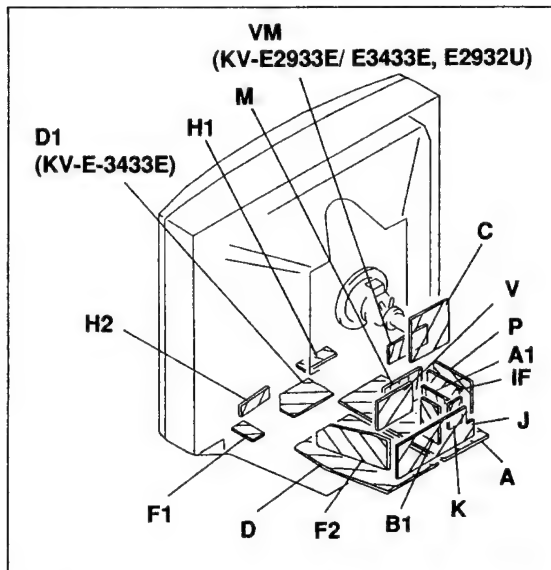
For all ICs in AE 2 chassis which are necessary to get picture and sound there is a built in error I<sup>2</sup>C Bus diagnosis system.

In case of no acknowledge bit, LED A and LED B starts blinking as shown.





### 5-3. CIRCUIT BOARDS LOCATION



### 5-4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

#### — Conductor Side —

#### Note:

- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  
 $\text{pF}$ :  $\mu\text{F}$  50WV or less are not indicated except for electrolytics and tantalums.
- All electrolytics are in 50V unless otherwise noted.
- All resistors are in ohms.  
 $\text{k}\Omega = 1000\Omega$ ,  $\text{M}\Omega = 1000\text{K}\Omega$
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch: 5 mm

Rating electrical power 1/4W

- METAL FILM (:RN) resistors in 1%, 1/6W unless otherwise noted.
- Chip resistors are 1/10W otherwise noted.
- METAL CHIP (:RN-CP) resistors in 0.5%, 1/6W unless otherwise noted.
- : nonflammable resistor.
- : internal component.
- : panel designation, or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : earth-ground.
- : earth-chassis.

- All voltages are in V.
- Voltage are dc with respect to ground unless otherwise noted.
- Readings are taken with a 10 M $\Omega$  digital multimeter.
- Readings are taken with a color-bar signal input.
- Voltage variations may be noted due to normal production tolerance.
- No mark : PAL or COMMON
- ( ) : SECAM
- [ ] : NTSC 4.43
- < > : NTSC 3.58
- : B+ bus.
- : B- bus.
- : signal path. (RF)
- Circled numbers are waveform references.

#### Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RW	NONFLAMMABLE WIREWOUND
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: ※	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

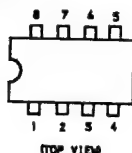
#### Note:

The components identified by shading and mark are critical for safety. Replace only with part number specified.



## 5-5. SEMICONDUCTORS

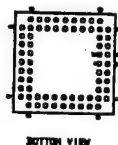
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 TDA2822M  
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 TEA2114  
 X24C16P



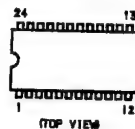
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TDA8443A/C4  
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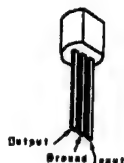
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 DTC114EK  
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 2SC2412K  
 2SC2413K-Q  
 2SC2712G



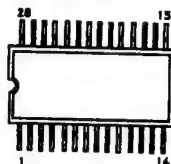
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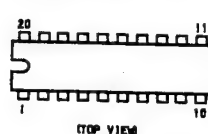
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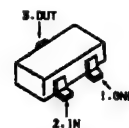
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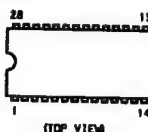
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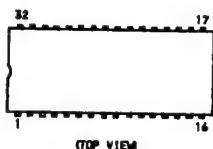
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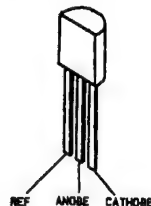
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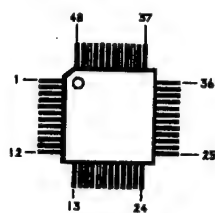
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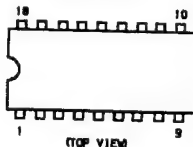
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TDA2595/V9



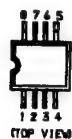
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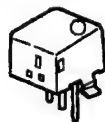
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 2SA733-K



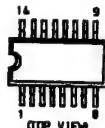
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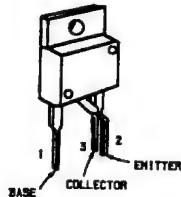
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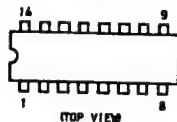
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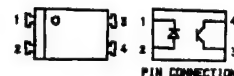
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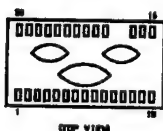
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SFH617G



SBX1692-01



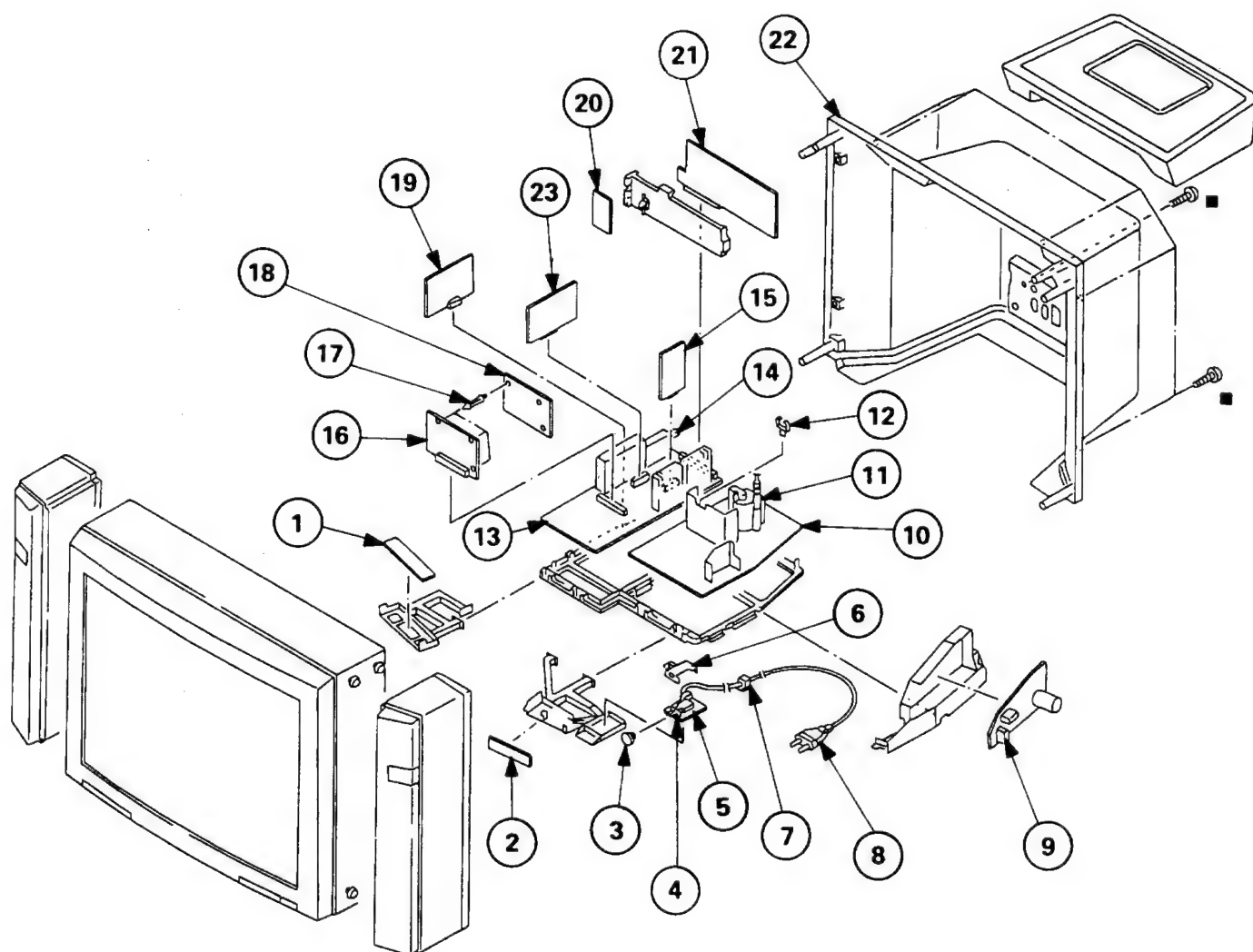






## 6-1. CHASSIS (KV-E2533E/ E2532U/ E2933E/ E2932U)

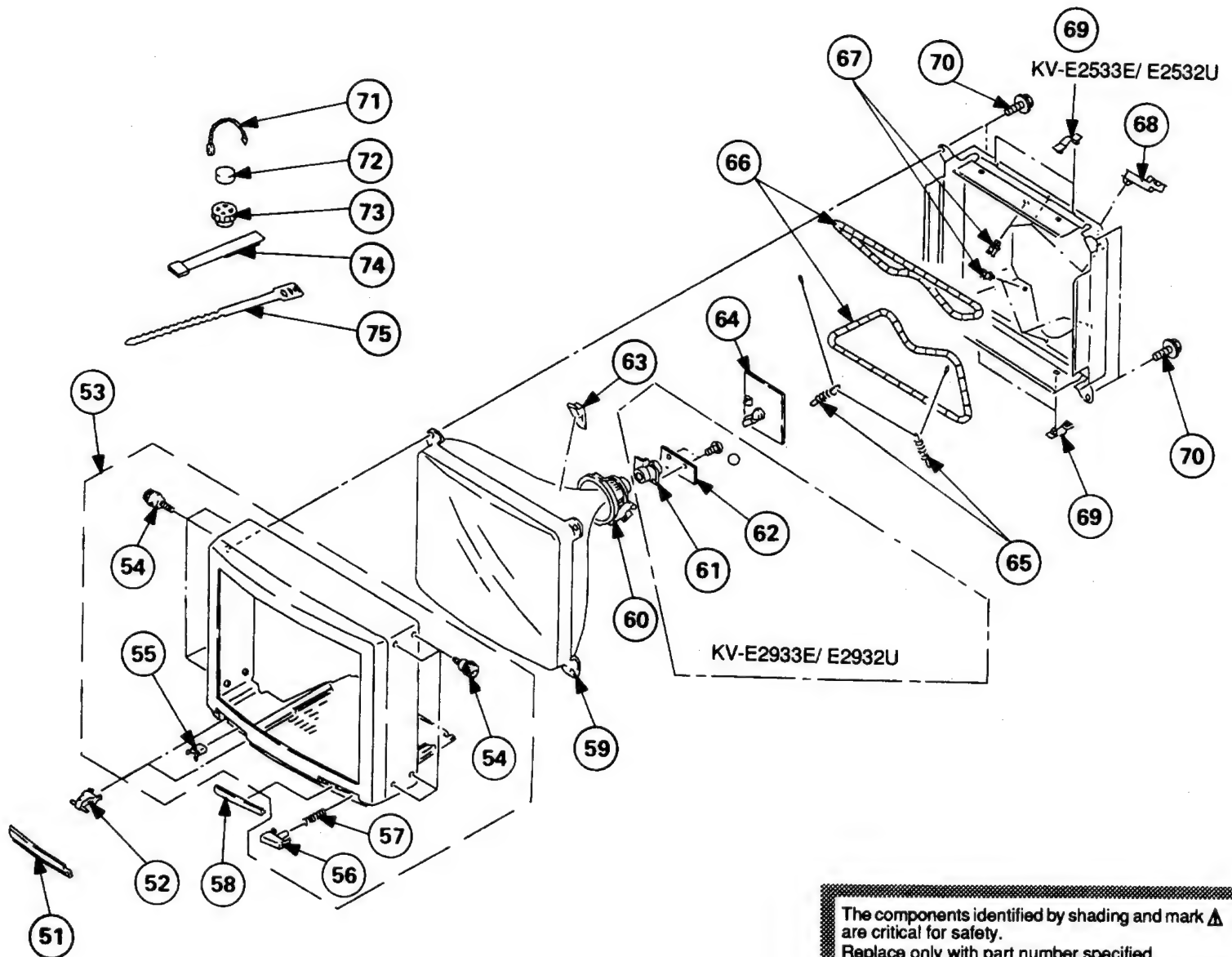
■ : BVTP4x16 7-685-663-79





## 6-2. PICTURE TUBE (KV-E2533E/ E2532U/ E2933E/ E2932U)

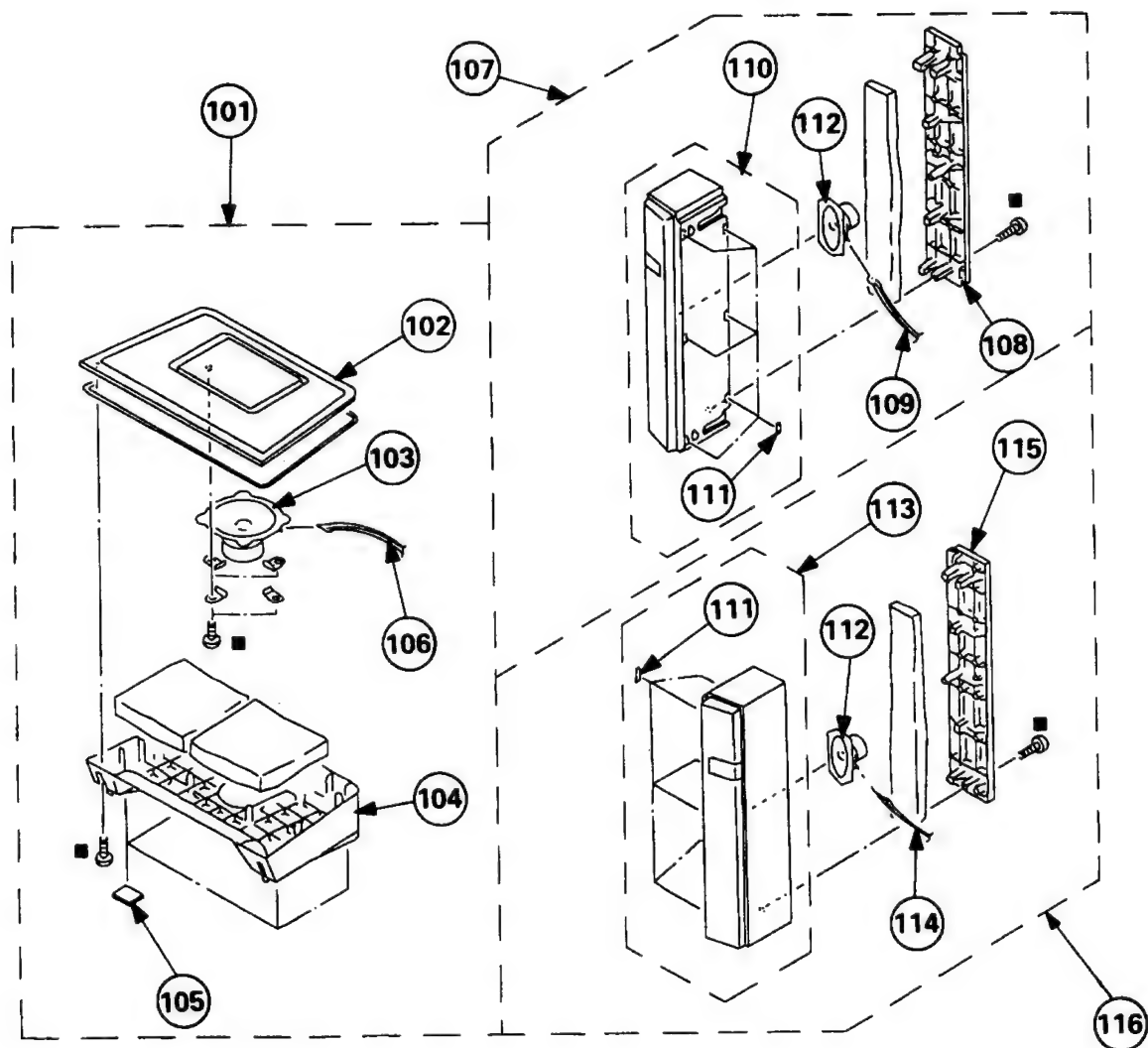
○ : BVTP3x8 7-685-646-79





## 6-3. SPEAKER (KV-E2533E/ E2932U/ E2933E/ E2932U)

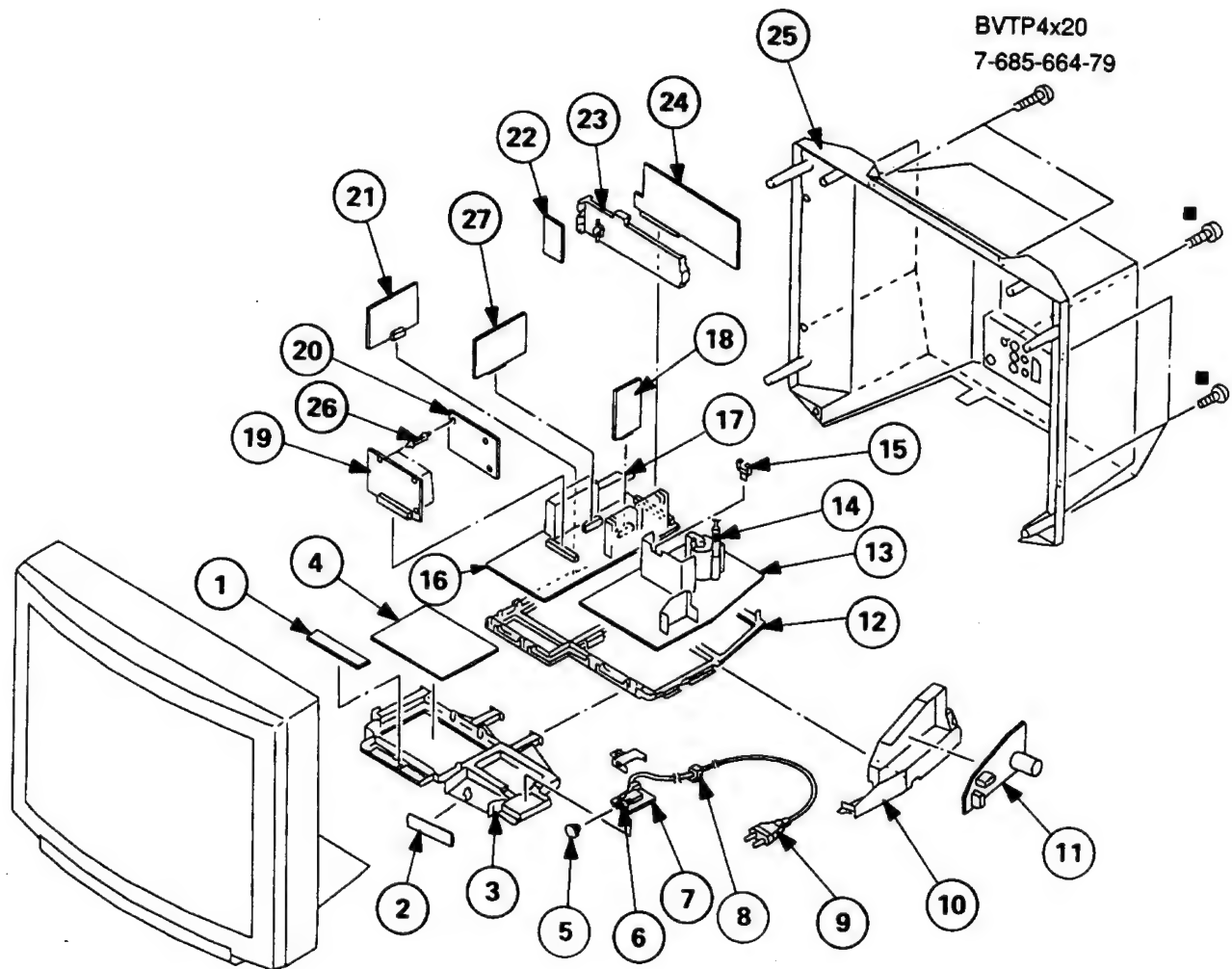
■ : BVTP4x16 7-685-663-79





## 6-4. CHASSIS (KV-E3433E)

■ : BVTP4x16 7-685-663-79

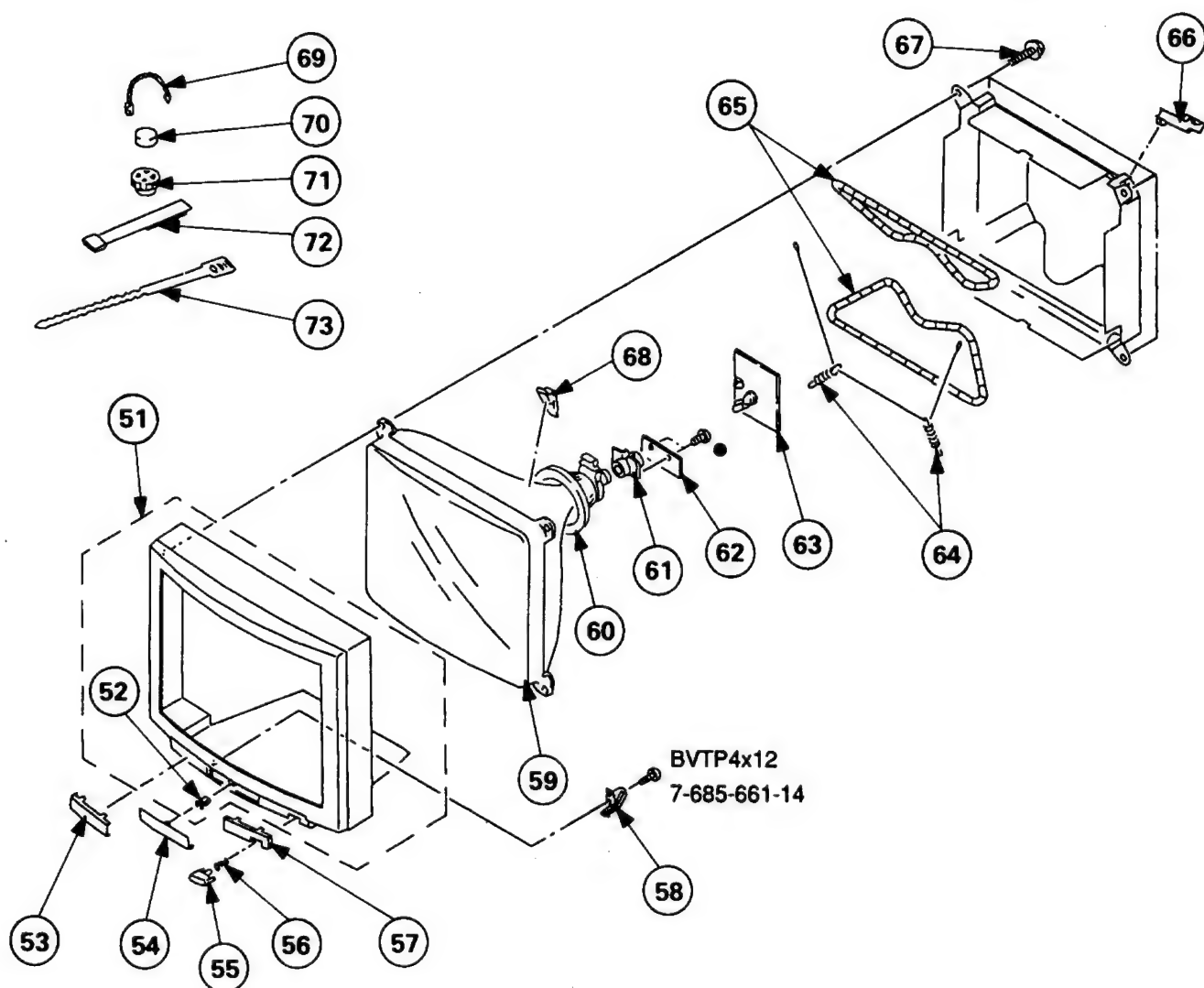


The components identified by shading and mark **▲** are critical for safety. Replace only with part number specified.



## 6-5. PICTURE TUBE (KV-E3433E)

● : BVTP3x12 7-685-648-79



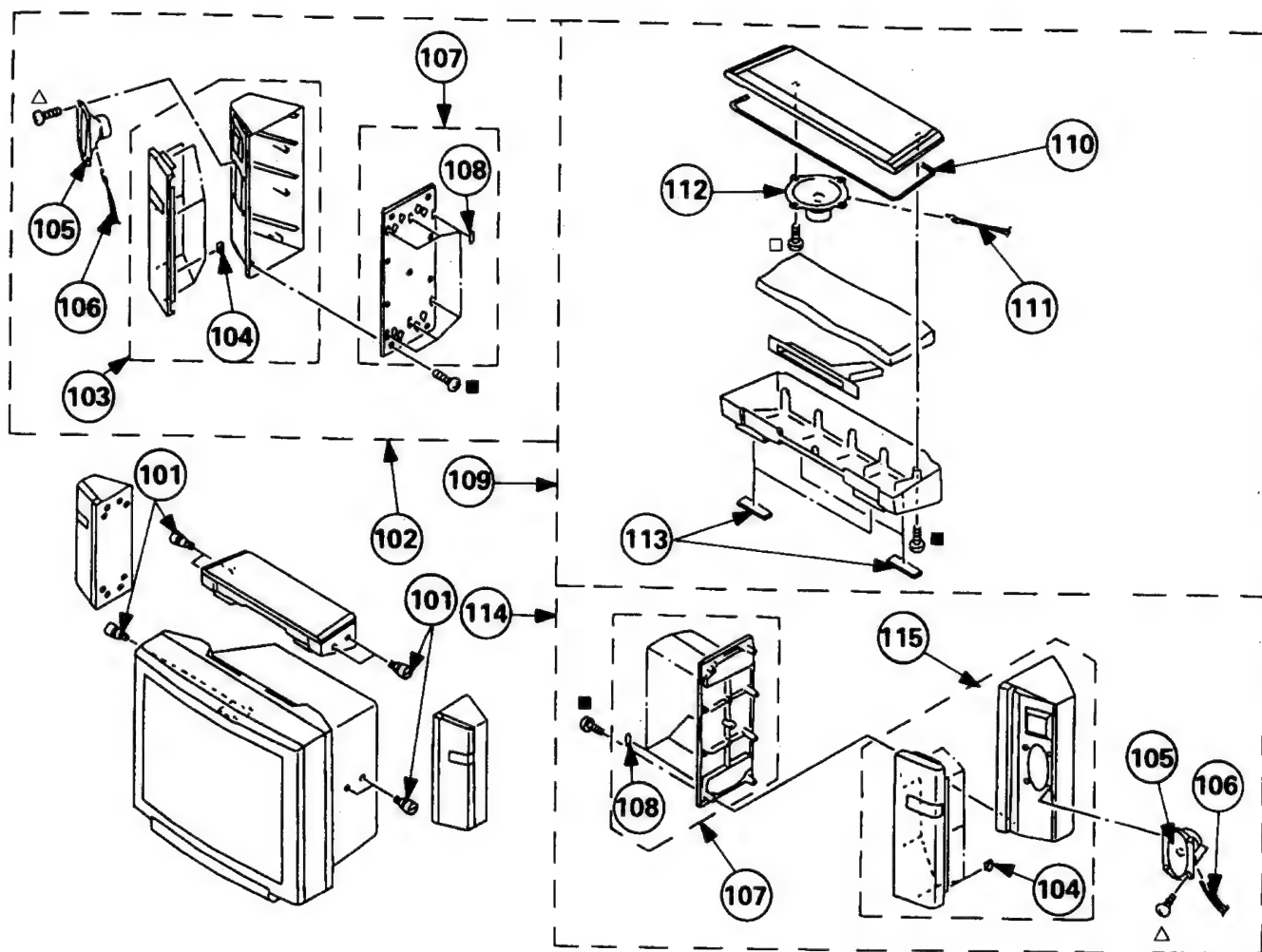


## 6-6. SPEAKER (KV-E3433E)

■ : BVTP4x16 7-685-663-79

□ : BVTP4x10 7-685-660-79

△ : BVTP4x8 7-685-659-79





# KV-E2533E / E2933E / E3433E KV-E2532U / E2932U

RM-830

RM-830

RM-832

## SONY SERVICE MANUAL

### *Spanish Model*

KV-E2533E  
Chassis No. SCC-F33A-A  
KV-E2933E  
Chassis No. SCC-F33B-A  
KV-E3433E  
Chassis No. SCC-F33C-A

## SUPPLEMENT-1

Supplement the service manual as shown below.  
File this supplement with the service manual.

**SUBJECT : CHANGE THE CHASSIS**

### *UK Model*

KV-E2532U  
Chassis No. SCC-F25A-A  
KV-E2932U  
Chassis No. SCC-F25B-A

A chassis is applied to the sets with the serial number indicated above.

## KV-E3433E only

( Serial No. 3,500,000 and later. Chassis No. SCC-G15G-A )

<b>AE-2 CHASSIS</b>	<b>➔</b>	<b>AE-2A CHASSIS</b>
<b>RM-832</b>	<b>➔</b>	<b>RM-842</b>





## Specifications

ITEM	MODEL	Television system	Stereo system	Channel coverage	Color system
Spanish		B/G/H, D/K	GERMAN/NICAM Stereo	PAL B/G VHF:E2-E12 UHF:E21-E69 CABLE TV (1):S1-S41 CABLE TV (2):S01-S05, M1-M10, U1-U10 ITALIA VHF:A-H2 (C) UHF:21-69 D/K VHF:R01-R12 UHF:R21-R69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)

MODEL	Spanish
Power consumption	140 Wh

Picture tube Hi-Black Trinitron  
Approx. 86 cm (34 inches)  
(Approx. 80 cm picture measured diagonally)  
110° -deflection

## 【REAR】

- ⊖ 1 21-pin Euro connector (CENELEC standard)
- Inputs for audio and video signals
  - inputs for RGB
  - outputs of TV video and audio signals
- ⊖ 2/-⊖ 2 21-pin Euro connector
  - inputs for audio and video signals
  - inputs for S video
  - outputs for audio and video signals (selectable)
- ⊖ 4/-⊖ 4 21-pin Euro connector
  - inputs for audio and video signals
  - inputs for S video
  - outputs for audio and video signals (monitor out)
- ⊖ 2, -⊖ 4 S video inputs
  - 4 pin DIN
- ⊖ Audio inputs (L, R) - phono jacks
- ⊖ S video output - 4 pin DIN
- ⊖ Audio outputs - phono jacks
- ⊖ Audio outputs (variable) - phono jacks
- External speaker terminals : 2-pin DIN
- Woofer terminal : 2-pin

## 【FRONT】

- ⊖ 3 Video input-phono jack
- ⊖ Audio input-phono jacks
- ⊖ 3 S video input 4-pin DIN
- ⊖ Headphone jack : Stereo minijack

Sound output 2×11W Side Speakers (RMS)  
35W Woofer(RMS)  
2×30W Side Speakers (Music)

Power requirement 220-240V

Dimensions Approx.822 x 659 x 587 mm

Weight Approx.78kg

Supplied accessories RM-842 Remote Commander (1)  
IEC designation R6 batteries (2)

Other features NICAM, FASTEXT

## 【RM-842】

Remote control system infrared control

Power requirements 3V dc  
2 batteries IEC designation R6 (size AA)

Dimensions Approx.65×225×21mm (w/h/d)

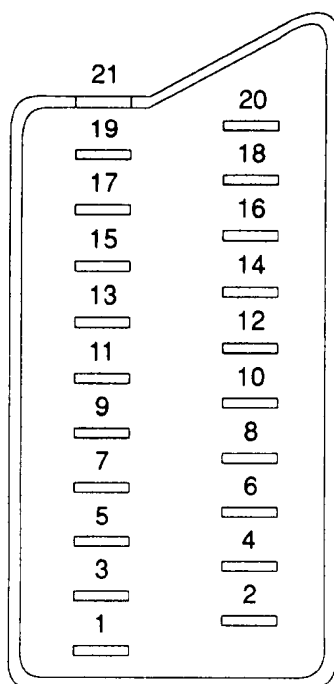
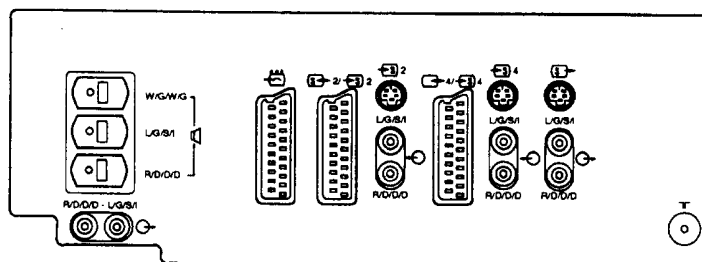
Weight Approx.157g (Not including Batteries)

Design and specifications are subject to change without notice.

Model name	KV-E3433E	Model name	KV-E3433E
Item		Item	
Pal Comb	ON	AxB in 16:9 mode	ON
PiP	ON	Norm B/G	ON
RGB Priority	ON	Norm I	OFF
Wooler Box	ON	Norm D/K	ON
		Norm AUS	OFF
Scart 1	ON	Norm L	OFF
Scart 2	ON	Norm SAT	OFF
Front In (3)	ON	Norm N	OFF
Scart 4	ON		
Dyn.Convergence	ON	Language Preset	Espanol
Projector	OFF		



21 pin connector (G1, G2/G4)



Pin No	1	2	4	Signal	Signal level
1	○	○	○	Audio output B (right)	Standard level: 0.5Vrms Output impedance: less than 1kohm*
2	○	○	○	Audio input B (right)	Standard level: 0.5Vrms Input impedance: More than 10kohms*
3	○	○	○	Audio output A (left)	Standard level: 0.5Vrms Output impedance: less than 1kohm*
4	○	○	○	Ground (audio)	
5	○	○	○	Ground (blue)	
6	○	○	○	Audio input A (left)	Standard level: 0.5Vrms Input impedance: More than 10kohms*
7	○	●	●	Blue input	0.7V±3dB, 75ohms, positive
8	○	○	○	Function select (AV control)	High state (9.5—12V): Part mode Low state (0—2V): TV mode Input impedance: More than 10kohms Input capacitance: Less than 2nF
9	○	○	○	Ground (green)	
10	○	○	○	Open	
11	○	●	●	Green	Green signal: 0.7V±3dB, 75ohms, positive
12	○	○	○	Open	
13	○	○	○	Ground (red)	
14	○	○	○	Ground (blanking)	
15	○	—	—	Red input	0.7V±3dB, 75ohms, positive
	—	○	○	(S signal) chroma input	0.3V±3dB, 75ohms, positive
16	○	●	●	Blanking input (Ys signal)	High state (1—3V) Low state (0—0.4V) Input impedance: 75ohms
17	○	○	○	Ground (video output)	
18	○	○	○	Ground (video input)	
19	○	○	○	Video output	1V±3dB, 75ohms, positive Sync: 0.3V(—3, +10dB)
20	○	—	—	Video input	1V±3dB, 75ohms, positive Sync: 0.3V(—3, +10dB)
	—	○	○	Video Input/Y (S signal)	1V±3dB, 75ohms, positive Sync: 0.3V(—3, +10dB)
21	○	○	○	Common ground (plug, shield)	

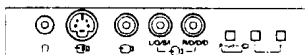
○ connected

● unconnected (open)

\* At 20 Hz—20kHz

4 pin connector (G1)

Pin No	Signal	Signal level
1	Ground	
2	Ground	
3	Y (S signal) input	1V±3dB 75ohm, positive Sync 0.3V <sup>-3</sup> <sub>+10</sub> dB
4	C (S signal) input	0.3V±3dB 75ohm, positive





## TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>	<u>Section</u>	<u>Title</u>	<u>Page</u>
<b>1. GENERAL</b>			<b>4. CIRCUIT ADJUSTMENTS</b>		
1-1.	Overview .....	5	4-1.	Electrical Adjustments.....	25
1-2.	Tuning in to TV Stations .....	6	4-2.	Volume Electrical Adjustments.....	29
1-3.	Additional Presetting Functions .....	7	4-3.	Test Mode 2:.....	30
1-4.	Watching the TV .....	9	4-4.	Error Message.....	31
1-5.	Adjusting and Setting the TV Using the Menu .....	10	4-5.	Error II C Bus Diagnosis System in AE-2A Chassis Available.....	31
1-6.	PIP (Picture In Picture).....	11			
1-7.	Teletext.....	11	<b>5. DIAGRAMS</b>		
1-8.	Connecting and Operating Optional Equipment .....	13	5-1.	Block Diagrams (1) .....	33
1-9.	For Your Information .....	14		Block Diagrams (2) .....	38
<b>2. DISASSEMBLY</b>			5-2.	Circuit Board Location .....	43
2-1.	Rear Cover Removal .....	15	5-3.	Schematic Diagrams and Printed Wiring Boards.....	44
2-2.	Chassis Assy Removal .....	15		H1, H2, F1 and F2 Boards.....	45
2-3.	Service Position.....	15		J Board.....	49
2-4.	B, M1 Boards Removal .....	15		A Board .....	54
2-5.	Extension Board .....	16		D5 and M1 Boards.....	62
2-6.	F Bracket Removal.....	16		D1 and D5 Boards .....	70
2-7.	J and K Boards Removal .....	17		P1 and B Boards .....	77
2-8.	P Board Removal.....	17		VM, K and C Boards .....	83
2-9-1.	Wire Rod.....	18		A1 Board .....	88
2-9-2.	Wire Rod.....	18		IF Board.....	93
2-10.	Picture Tube Removal .....	19	5-4.	Semiconductors .....	97
<b>3. SET-UP ADJUSTMENTS</b>			<b>6. EXPLODED VIEWS</b>		
3-1.	Beam Landing .....	20	6-1.	Chassis.....	99
3-2.	Convergence .....	21	6-2.	Picture Tube.....	100
3-3.	Focus .....	24	6-3.	Speaker .....	101
3-4.	White Balance .....	24	<b>7. ELECTRICAL PARTS LIST</b> .....		102

**(CAUTION)**

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

**WARNING!!**

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.  
THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

**SAFETY-RELATED COMPONENT WARNING !!**

COMPONENTS IDENTIFIED BY SHADING AND MARK  $\Delta$  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

**(ATTENTION)**

APRES AVOIR DECONNECTE LE CAP DE L'ANODE, COURT-CIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.

**ATTENTION!!**

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHÂSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÉ LORS DE TOUT DÉPANNAGE. LE CHÂSSIS DE CE RÉCEPTEUR EST DIRECTEMENT RACCORDÉ À L'ALIMENTATION SECTEUR.

**ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!**

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET PAR UNE MAPQUE  $\Delta$  SUR LES SCHÉMAS DE PRINCIPE, LES VUES EXPLOSÉES ET LES LISTES DE PIÈCES CONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÈCE EST INDICÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR SONY.

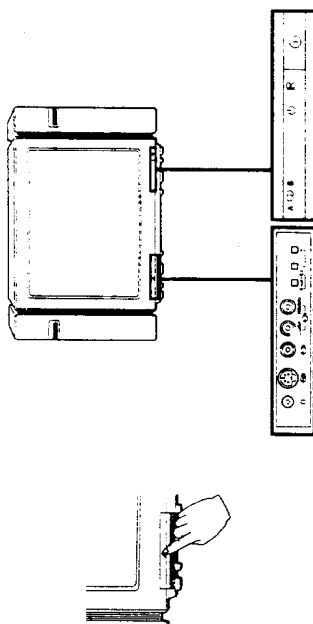


## SECTION 1 GENERAL

This section is extracted from instruction manual.

This section briefly describes the buttons and controls on the TV set and on the Remote Commander. For more information, refer to the pages given next to each description.

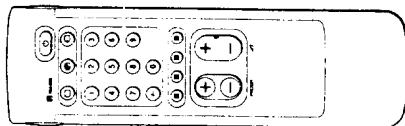
**TV set - front**



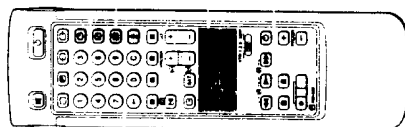
Symbol	Name	Refer to page
①	Main power switch	42
②	Standby indicator	42
A-D-B	Stereo A/B indicators	44
③	Headphones jack	50
④ 3, ⑤ 3, ⑥ 3, ⑦ 3,	Input jacks (S-video/video/audio)	50
⑧ 3, ⑨ 3, ⑩ 3,	Function selector	43
⑪ 3, ⑫ 3, ⑬ 3,	(Programme/volume/input)	43
⑭ 3, ⑮ 3, ⑯ 3,	Adjustment buttons for function selector	43

**Note**  
The SAT button does not operate with this TV.

## Remote Commander



### Simple side



### Full-Function side

**TV/Teletext operation**

### PIP operation





## Menu operation

## Video operation


## TV-operation

Symbol	Name	Refer to Page
	Mute on/off button	43
	Standby button	42
	TV power on/TV mode selector button	42
	Teletext button	43
	Input mode selector	43
	Output mode selector	51
	Number buttons	42
	Double-digit entering button	42
	Direct channel entering button	41
	Volume control button	42
	Programme selectors	42
	Teletext page access buttons	47
	Picture adjustment button	44
	Sound adjustment button	44
	On-screen display button	43
	Teletext hold button	47
	Time display button	43
	Fastext buttons	47





### PIP (Picture-in-picture) operation

Symbol	Name	Refer to Page
	PIP on / off button	46
	PIP source selector	46
	Swap button	46
	PIP position changing button	46

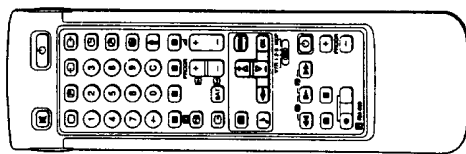
<i>Menu operation</i>		
Symbol	Name	Refer to Page
MENU	Menu on / off button	36
+ / -	Select buttons	36
OK	OK (confirming) button	36
	Back button	36

<i>Video operation</i>		
Symbol	Name	Refer to Page
T/RT1/2/3	Video equipment selector	52
MDP	Video equipment operation buttons	52
   	PROGR +/-	



## 1-2. TUNING IN TO TV STATIONS



Once you have set up the TV, you can choose the language of the menu. Then you should preset the channels (up to 100 channels) by choosing either the automatic or manual method. The automatic method is easier if you want to preset all receivable channels at once. Use the manual method if you only have a few channels and want to preset channels one by one. The manual method is also convenient for allocating programme numbers to various video input sources.

Auto Program		
PROG	CH	SEARCH LABEL
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10

Manual Menu		
PROG	CH	SEARCH LABEL
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10

### Before you begin

- Check that the Full-Function side of the Remote Commander is visible.
- Locate Menu operation buttons on the Remote Commander. They are shaded in the illustration at the left.

## 1 Display the Menu

- Depress on the TV.
- The TV will switch on. If the standby indicator on the TV is lit, press or a number button on the Remote Commander.
- Press the MENU button.
- The main menu appears.

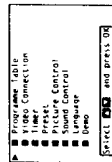


Fig. 1.

## 2 Choose a language

- Select Language with the or button and press the OK button.
- The LANGUAGE menu appears. (See Fig. 2)
- Select the language you want with or , press OK, and then press .
- Now, choose one of the following methods "Preset Channels Automatically"

or  
"Preset Channels Manually".

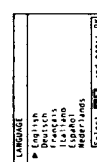


Fig. 2.

To go back to main menu  
Keep pressing

To go back to the normal TV picture  
Press MENU.

**Note on the Demo**  
If you choose Demo on the main menu, you can see a sequential demonstration of the menu functions.

## 3 Preset channels automatically

- Select Preset with or and press OK. The PRESET menu appears. (See Fig. 3.)
- Select Auto Programme with or and press OK. The AUTO PROGRAMME menu appears. (See Fig. 4.)
- Press OK.
- Select if necessary the TV broadcast system with or and press OK. (B/G for western European countries, D/K for eastern European countries) The first element of the "PROG" number will be highlighted.
- Select the programme (number button) from which you want to start presetting. Select the first element of the double-digit number with or or the number buttons (e.g. For "04", select "0" here) and press OK.
- The second element of "PROG" will be highlighted. Select the second element of the double-digit number with or or the number buttons (e.g. For "04", select "4" here) (See Fig. 5.) and press OK.
- Select "C" or "S" with or and press OK.

The automatic channel presetting starts. When presetting is finished the preset menu reappears. All available channels are now stored on successive number buttons.

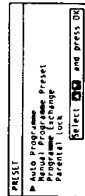


Fig. 3.

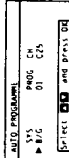


Fig. 4.



Fig. 5.

## 3 Preset channels manually

- Select Preset with or and press OK. The PRESET menu appears. (See Fig. 6.)
- Select Manual Programme preset with or and press OK.

The MANUAL PROGRAMME PRESET menu appears. (See Fig. 7.)

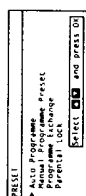


Fig. 6.

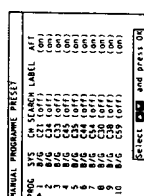
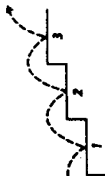


Fig. 7.



# 1-3. ADDITIONAL PRESETTING FUNCTIONS



This section shows you additional presetting functions such as exchanging or skipping programme positions, captioning a station name, manual fine-tuning, and using the parental lock.

## Before you begin

- Check that the Full Function side of the Remote Commander is visible
- Locate the Menu operation buttons.

## Exchanging Programme Positions

With this function, you can exchange the programme positions to a preferable order.

- 1 Press MENU to display the main menu.
- 2 The PRESET menu appears.
- 3 Select Programme Exchange with  $\Delta$ + or  $\nabla$ - and press OK. The PROGRAMME EXCHANGE menu appears. (See Fig. 14.)
- 4 Using  $\Delta$ + or  $\nabla$ -, select the programme position you want to exchange with another and press OK.
- 5 The colour of the selected position changes. (See Fig. 15.)
- 6 Repeat steps 4 and 5 to exchange other programme positions.

PROG. CH	LABEL	PROG. CH	LABEL
0	AV1	9	CH1
1	AV2	10	CH2
2	CH3	11	CH3
3	CH4	12	CH4
4	CH5	13	CH5
5	CH6	14	CH6
6	CH7	15	CH7
7	CH8		
8	CH9		

Fig. 14.

PROG. CH	LABEL	PROG. CH	LABEL
0	AV1	9	CH1
1	AV2	10	CH2
2	CH3	11	CH3
3	CH4	12	CH4
4	CH5	13	CH5
5	CH6	14	CH6
6	CH7	15	CH7
7	CH8		
8	CH9		

Fig. 15.

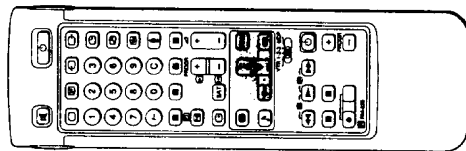
PROG. CH	LABEL	PROG. CH	LABEL
0	AV1	9	CH1
1	AV2	10	CH2
2	CH3	11	CH3
3	CH4	12	CH4
4	CH5	13	CH5
5	CH6	14	CH6
6	CH7	15	CH7
7	CH8		
8	CH9		

Fig. 16.

## Tuning in a Channel Temporarily

You can tune in a channel temporarily, even when it has not been preset. Use the buttons on the Full-Function side of the Remote Commander.

- 1 Press C on the Remote Commander. The indication "C" appears on the screen.
- 2 Enter the double-digit channel number using the number buttons (e.g. for channel 4, first press 0, then 4). The channel appears. However, the channel will not be stored.



For programme positions beyond 15 the display scrolls automatically.

If you have made a mistake Press  $\leftarrow$  to go back to the previous position. To go back to main menu Keep pressing  $\leftarrow$ . To go back to the normal TV picture Press MENU.

- 3 Using  $\Delta$ + or  $\nabla$ -, select the programme position (number button) to which you want to preset a channel, and press OK.
- 4 Select if necessary the TV broadcast system (BIG for western European countries, D1K for eastern European countries) or a video input source (EXT) with  $\Delta$ + or  $\nabla$ -. Then press OK. The CH position will be highlighted. (See Fig. 8.)
- 5 Using  $\Delta$ + or  $\nabla$ -, select C (to preset a regular channel), or F (to tune in by frequency) and press OK. The first element of the "CH" number will be highlighted. If you have selected EXT in step 4, select the video input source with  $\Delta$ + or  $\nabla$ -. (See Fig. 9.)

2	BIG	D1K	EXT	EXT	EXT	EXT
1						

Fig. 8.

1	EXT	EXT	EXT	EXT	EXT	EXT
1						

Fig. 9.

There are two ways to preset channels. If you know the channel number, go to step "6-Manual".

or  
if you don't know the channel number, go to step "6-Search".

## Manual

- Select the first element of the "CH" number with  $\Delta$ + /  $\nabla$ - or the number buttons and press OK.
- Select the second element of the "CH" number will be highlighted. Select the second element of the number with  $\Delta$ + /  $\nabla$ - or the number buttons. The selected number appears. (See Fig. 10.)
- Press OK. The "SEARCH" position is highlighted and the selected channel is now stored. (See Fig. 11.)
- Press OK until the cursor appears by the next programme position.
- Repeat steps 3 to 6 to preset other channels.

2	BIG	D1K	EXT	EXT	EXT	EXT
1						

Fig. 10.

2	BIG	D1K	EXT	EXT	EXT	EXT
1						

Fig. 11.

2	BIG	D1K	EXT	EXT	EXT	EXT
1						

Fig. 12.

2	BIG	D1K	EXT	EXT	EXT	EXT
1						

Fig. 13.

## Search

- Press OK repeatedly until the colour of the SEARCH position changes.
- Start searching for the channel with  $\Delta$ + (up) or  $\nabla$ - (down). The CH position changes colour. (See Fig. 12.) The CH number starts counting up or downwards. When a channel is found, it stops. (See Fig. 13.)
- Press OK if you want to store this channel. If not, press  $\Delta$ + or  $\nabla$ - to continue channel searching.
- Press OK until the cursor appears by the next programme position.
- Repeat steps 3 to 6 to preset other channels.

To tune in a channel by frequency After selecting F in step 5, enter three digits using the number buttons.

If you have made a mistake Press  $\leftarrow$  to go back to the previous position. To go back to main menu Keep pressing  $\leftarrow$ . To go back to the normal TV picture Press MENU.



## MANUAL PROGRAMME PRESET

### Skiping Programme Positions

You can skip unused programme positions when selecting programmes with the PROG +/- buttons. However, the skipped programmes may still be called up when you use the number buttons.

- 1 Press MENU to display the main menu.
- 2 Select Preset with  $\Delta$  or  $\nabla$  and press OK.
- 3 The PRESET menu appears.
- 4 Select Manual Programme Preset with  $\Delta$  or  $\nabla$  and press OK.
- 5 The MANUAL PROGRAMME PRESET menu appears. (See Fig. 18.)
- 6 Using  $\Delta$  or  $\nabla$ , select the programme position which you want to skip and press OK.
- 7 The "SYSTEM" position changes colour.
- 8 Press  $\Delta$  or  $\nabla$  until --- appears in the SYSTEM position. (See Fig. 19.)
- 9 Press OK. (See Fig. 19)
- 10 When you select programmes using the PROG +/- buttons, the programme position will be skipped.
- 11 Repeat steps 4 to 6 to skip other programme positions.



PROG	SY	CH	SEARCH	LABEL	AFT
1	B/G	C24	OFF	---	---
2	B/G	C24	OFF	---	---
3	B/G	C24	OFF	---	---
4	B/G	C24	OFF	---	---
5	B/G	C24	OFF	---	---
6	B/G	C24	OFF	---	---
7	B/G	C24	OFF	---	---
8	B/G	C24	OFF	---	---
9	B/G	C24	OFF	---	---
10	B/G	C24	OFF	---	---

Fig. 17.

PROG	SY	CH	SEARCH	LABEL	AFT
1	B/G	C24	OFF	---	---
2	B/G	C24	OFF	---	---
3	B/G	C24	OFF	---	---
4	B/G	C24	OFF	---	---
5	B/G	C24	OFF	---	---
6	B/G	C24	OFF	---	---
7	B/G	C24	OFF	---	---
8	B/G	C24	OFF	---	---
9	B/G	C24	OFF	---	---
10	B/G	C24	OFF	---	---

Fig. 18.

PROG	SY	CH	SEARCH	LABEL	AFT
1	B/G	C24	OFF	---	---
2	B/G	C24	OFF	---	---
3	B/G	C24	OFF	---	---
4	B/G	C24	OFF	---	---
5	B/G	C24	OFF	---	---
6	B/G	C24	OFF	---	---
7	B/G	C24	OFF	---	---
8	B/G	C24	OFF	---	---
9	B/G	C24	OFF	---	---
10	B/G	C24	OFF	---	---

Fig. 19.

## MANUAL PROGRAMME PRESET

### Captioning a Station Name

You can "name" a channel or an input video source using up to five characters (letters or numbers) to be displayed on the TV screen (e.g. ZDF). Using this function, you can easily identify which channel or video source you are watching.

- 1 Press MENU to display the main menu.
- 2 Select Preset with  $\Delta$  or  $\nabla$  and press OK.
- 3 The PRESET menu appears.
- 4 Select Manual Programme Preset with  $\Delta$  or  $\nabla$  and press OK.
- 5 The MANUAL PROGRAMME PRESET menu appears. (See Fig. 20.)
- 6 Using  $\Delta$  or  $\nabla$ , select the programme position you want to caption and press OK repeatedly until the first element of the LABEL position is highlighted.
- 7 Select a letter or number with  $\Delta$  or  $\nabla$  and press OK. The next element will be highlighted.
- 8 Select other characters in the same way. If you want to leave an element blank, select --- and press OK. (See Fig. 21.)
- 9 After selecting all the characters, press OK repeatedly until the cursor appears by the next programme position (at the left margin). Now the caption you chose is stored. (See Fig. 22.)
- 10 Repeat steps 5 and 6 to caption names for other channels.

**If you have made a mistake**  
Press  $\leftarrow$  to go back to the previous position.  
To go back to main menu keep pressing  $\leftarrow$ .  
To go back to the normal TV picture Press MENU.

PROG	SY	CH	SEARCH	LABEL	AFT
1	B/G	C24	OFF	---	---
2	B/G	C24	OFF	---	---
3	B/G	C24	OFF	---	---
4	B/G	C24	OFF	---	---
5	B/G	C24	OFF	---	---
6	B/G	C24	OFF	---	---
7	B/G	C24	OFF	---	---
8	B/G	C24	OFF	---	---
9	B/G	C24	OFF	---	---
10	B/G	C24	OFF	---	---

Fig. 20.

PROG	SY	CH	SEARCH	LABEL	AFT
1	B/G	C24	OFF	---	---
2	B/G	C24	OFF	---	---
3	B/G	C24	OFF	---	---
4	B/G	C24	OFF	---	---
5	B/G	C24	OFF	---	---
6	B/G	C24	OFF	---	---
7	B/G	C24	OFF	---	---
8	B/G	C24	OFF	---	---
9	B/G	C24	OFF	---	---
10	B/G	C24	OFF	---	---

Fig. 21.

PROG	SY	CH	SEARCH	LABEL	AFT
1	B/G	C24	OFF	---	---
2	B/G	C24	OFF	---	---
3	B/G	C24	OFF	---	---
4	B/G	C24	OFF	---	---
5	B/G	C24	OFF	---	---
6	B/G	C24	OFF	---	---
7	B/G	C24	OFF	---	---
8	B/G	C24	OFF	---	---
9	B/G	C24	OFF	---	---
10	B/G	C24	OFF	---	---

Fig. 22.

## MANUAL PROGRAMME PRESET

### Manual Fine-Tuning

Normally, the AFT (automatic fine-tuning) is already operating. However, if the picture is distorted, you can use the manual fine tuning function to obtain better picture reception.

- 1 Press MENU to display the main menu.
- 2 Select Preset with  $\Delta$  or  $\nabla$  and press OK.
- 3 The PRESET menu appears.
- 4 Select Manual Programme Preset with  $\Delta$  or  $\nabla$  and press OK.
- 5 The MANUAL PROGRAMME PRESET menu appears. (See Fig. 23.)
- 6 Using  $\Delta$  or  $\nabla$ , select the programme position corresponding to the channel which you want to manually fine-tune, and press OK repeatedly until the AFT position changes colour.
- 7 Fine-tune the channel with  $\Delta$  or  $\nabla$  so that you get the best TV reception. As you press the cursor buttons, the frequency changes from -15 to +15. (See Fig. 24.)
- 8 After fine tuning, press OK.
- 9 The cursor appears beside the next programme position (at the left margin). (See Fig. 25.) Now the fine-tuned level is stored.
- 10 Repeat steps 4 to 6 to fine-tune other channels.

PROG	SY	CH	SEARCH	LABEL	AFT
1	B/G	C24	OFF	---	---
2	B/G	C24	OFF	---	---
3	B/G	C24	OFF	---	---
4	B/G	C24	OFF	---	---
5	B/G	C24	OFF	---	---
6	B/G	C24	OFF	---	---
7	B/G	C24	OFF	---	---
8	B/G	C24	OFF	---	---
9	B/G	C24	OFF	---	---
10	B/G	C24	OFF	---	---

Fig. 23.

PROG	SY	CH	SEARCH	LABEL	AFT
1	B/G	C24	OFF	---	---
2	B/G	C24	OFF	---	---
3	B/G	C24	OFF	---	---
4	B/G	C24	OFF	---	---
5	B/G	C24	OFF	---	---
6	B/G	C24	OFF	---	---
7	B/G	C24	OFF	---	---
8	B/G	C24	OFF	---	---
9	B/G	C24	OFF	---	---
10	B/G	C24	OFF	---	---

Fig. 24.

PROG	SY	CH	SEARCH	LABEL	AFT
1	B/G	C24	OFF	---	---
2	B/G	C24	OFF	---	---
3	B/G	C24	OFF	---	---
4	B/G	C24	OFF	---	---
5	B/G	C24	OFF	---	---
6	B/G	C24	OFF	---	---
7	B/G	C24	OFF	---	---
8	B/G	C24	OFF	---	---
9	B/G	C24	OFF	---	---
10	B/G	C24	OFF	---	---

Fig. 25.

## PARENTAL LOCK

### Parental Lock

You can prevent undesirable broadcasts from appearing on the screen. We suggest you use this function to prevent children from watching programmes which you consider unsuitable.

- 1 Press MENU to display the main menu.
- 2 Select Preset with  $\Delta$  or  $\nabla$  and press OK.
- 3 The PRESET menu appears.
- 4 Select Parental Lock with  $\Delta$  or  $\nabla$  and press OK.
- 5 The PARENTAL LOCK menu appears. (See Fig. 26.)
- 6 Using  $\Delta$  or  $\nabla$ , select the programme position you want to block and press OK.
- 7 The selected PROG number, CH and LABEL change colour indicating that this programme is now blocked. (See Fig. 27.)
- 8 Repeat step 4 to block other programme positions.

PROG	SY	CH	SEARCH	LABEL	AFT
1	B/G	C24	OFF	---	---
2	B/G	C24	OFF	---	---
3	B/G	C24	OFF	---	---
4	B/G	C24	OFF	---	---
5	B/G	C24	OFF	---	---
6	B/G	C24	OFF	---	---
7	B/G	C24	OFF	---	---
8	B/G	C24	OFF	---	---
9	B/G	C24	OFF	---	---
10	B/G	C24	OFF	---	---

Fig. 26.

PROG	SY	CH	SEARCH	LABEL	AFT
1	B/G	C24	OFF	---	---
2	B/G	C24	OFF	---	---
3	B/G	C24	OFF	---	---
4	B/G	C24	OFF	---	---
5	B/G	C24	OFF	---	---
6	B/G	C24	OFF	---	---
7	B/G	C24	OFF	---	---
8	B/G	C24	OFF	---	---
9	B/G	C24	OFF	---	---
10	B/G	C24	OFF	---	---

Fig. 27.

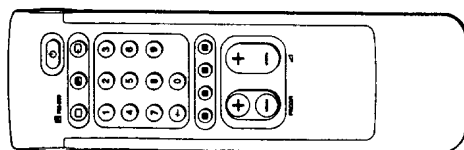
### Cancelling blocking


- 1 On the PARENTAL LOCK menu, select the programme position you want to unblock with  $\Delta$  or  $\nabla$ .
- 2 Press OK.
- 3 The selected PROG number, CH and LABEL change colour to normal colour indicating that the blocking has been cancelled.


**If you try to select a programme that has been blocked**  
The message "Locked" appears on the blank TV screen.



## 1-4. WATCHING THE TV




If no picture appears when you depress  on the TV

and if the standby indicator on the TV is lit, the TV is in standby mode. Press  or one of the number buttons to switch it on.


This section explains the basic functions you use while watching TV. Most of the operations can be done using the simple side of the Remote Commander.

### Switching the TV on and off

#### Switching on



Depress  on the TV.

#### Switching off temporarily


Press  on the Remote Commander.

The TV enters standby mode and the standby indicator on the front of the TV lights up.


#### To switch on again

Press , PROG  or one of the number buttons on the Remote Commander.


#### Switching off completely


Depress  on the TV.

### Selecting TV Programmes

Press PROG  or press number buttons.

#### To select a double-digit number

Press , then the numbers.







For example, if you want to choose 23, press , 2, and 3.

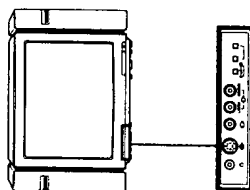
### Adjusting the Volume

Press .

### Operating the TV Using the Buttons on the TV





With the buttons on the TV, you can select programmes, adjust the volume, and select video input sources.

- Press  button repeatedly until the programme number,  (for volume), or  (for video input picture) appears. Then adjust with the  buttons.
- Press  buttons to switch on the TV from the standby mode.
- Press  simultaneously to reset picture and sound controls to the factory preset level (RESET function.)





### Watching Teletext or Video Input

#### Watching teletext

- Press  to view the teletext.
- Press three number buttons to select a page.
- Press one of the coloured buttons for fasttext operation.
- Press  (PAGE +) or  (PAGE -) for the next or preceeding page.
- To go back to the normal TV picture, press .


#### Watching a video input picture


Press  repeatedly until the desired video input appears. To go back to the normal TV picture, press .

### More Convenient Functions

Use the Full-Function side of the Remote Commander.

#### Displaying the on screen indications

Press  once to display all the indications. They will disappear after some seconds.

Press  twice to have the programme number and label stay on screen. Press twice again to make indications disappear.


#### Muting the sound.

Press .

To resume normal sound, press  again.

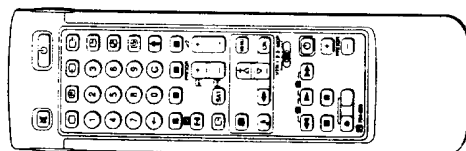
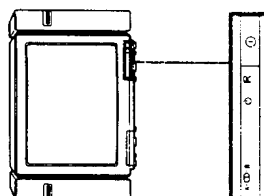
#### Displaying the time

Press . This function is available only when teletext is broadcast.

To make the time display disappear, press  again.

For details of the teletext operation, refer to page 47.

For details of the video input picture, refer to page 51.





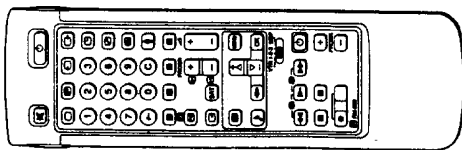
## 1-5. ADJUSTING AND SETTING THE TV USING THE MENU



### Adjusting the Picture and Sound

Although the picture and sound are adjusted at the factory, you can adjust them to suit your own taste. In addition, you can change the aspect ratio of the TV display for wide screen effect, or set the resolution to obtain a higher quality picture. You can also select dual sound (bilingual) programmes when available or adjust the sound for listening with the headphones.

- Press **OK** (for picture) or **OK** (for sound) on the Remote Commander.  
or  
Press **MENU** and select **Picture Control** or **Sound Control**, then press **OK**.  
The **PICTURE CONTROL** or **SOUND CONTROL** menu appears. (See Fig. 28 or Fig. 29)
- Using **▲** or **▼**, select the item you want to adjust and press **OK**. The selected item changes colour. (See Fig. 30)
- Adjust the setting with **▲** or **▼** and press **OK**.  
The cursor appears beside the next item (at the left margin). (See Fig. 31)  
For the effect of each control, see the table below.
- Repeat steps 2 and 3 to adjust other items.



If you have made a mistake

Press **←** to go back to the previous position.  
To go back to the main menu

Keep pressing **←**.  
To go back to the normal TV picture  
Press **MENU**.

Note  
HUE is only available for NTSC colour system and RESOLUTION does not work for SECAM colour system.

Note on LINE OUT  
The audio level and the dual sound mode output from the G- jack on the rear correspond to the HEADPHONES VOLUME and DUAL SOUND settings.

When watching video input picture  
You can select DUAL SOUND to change the sound.

### PROGRAMME TABLE

To select a programme using this menu  
Select the programme number with **▲** or **▼** and press **OK**.  
The selected programme appears.

To go back to the normal TV picture  
Press **MENU**.

PROGRAMME	TABLE	PROGRAMME	TABLE
1	124	11	124
2	124	12	124
3	124	13	124
4	124	14	124
5	124	15	124
6	124	16	124
7	124	17	124
8	124	18	124
9	124	19	124
10	124	20	124

Fig. 32.

### Using the Sleep Timer

You can select a time period after which the TV automatically switches into standby mode.

- From the main menu, select **Timer** with **▲** or **▼** and press **OK**.
- The **Timer** menu appears. (See Fig. 33.)
- Press **OK**.

The time period option changes colour.

Select the time period with **▲** or **▼**.  
The time period (in minutes) changes as follows:  
10-20-30-40-50-60-70-80-90

Press **OK** and press **OK**.

TIME	TIME
10	10
20	20
30	30
40	40
50	50
60	60
70	70
80	80
90	90

Fig. 33.

### Effect of each control

PICTURE CONTROL	Effect
Contrast	Less ——— More
Brightness	Darker ——— Brighter
Colour	Less ——— More
Hue	Greenish ——— Reddish
Sharpness	Softer ——— Sharper
Reset	Resets picture to the factory preset levels.
Format	4 : 3 : Normal 16 : 9 : Wide screen effect
Resolution	Normal High : Obtain a higher quality picture
SOUND CONTROL	Effect
Volume	Less ——— More
Treble	Less ——— More
Bass	Less ——— More
Balance	More left ——— More right
Reset	Resets sound to the factory preset levels.
Loudness	off : Normal on : When listening to low volume sound.
Space	off : Normal on : Obtain acoustic sound effect.
Dual Sound	A : left channel B : right channel stereo mono
Headphones:	The selected mode of the A-C-D-B indicator on the TV lights up.
Volume	Less ——— More
Dual Sound	A : left channel B : right channel stereo mono

### Using the Programme Table

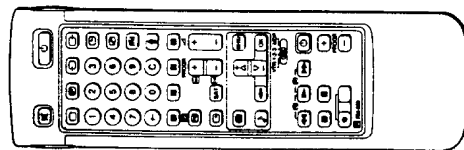
On this table, you can see which channel is preset to which programme position. You can also select programmes using this table.

From the main menu, select **Programme Table** with **▲** or **▼** and press **OK**.

The **PROGRAMME TABLE** menu appears. (See Fig. 32)  
To scroll to higher programme numbers, press **▲**.

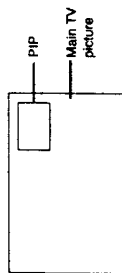


## 1-6. PIP (PICTURE IN PICTURE)



**Note**  
RGB input source cannot be displayed in PIP.

With this function you can display a "PIP screen" (small picture) within the main TV picture. In this way you can watch or monitor the video output from any connected equipment (for example from a VTR), while watching TV or vice versa. For information about connection of other equipment, refer to page 50.



### Switching PIP on and off

Press **Q**.  
The PIP screen will be displayed. The PIP picture will come from the source chosen when the TV was last used.  
To switch PIP off  
Press **Q** again.

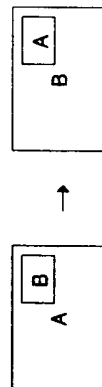
### Selecting a PIP source

Press **f**.  
The symbol **f** will be displayed at the bottom, left-hand corner of the screen.  
Press **-C-** repeatedly until the desired PIP source is indicated (e.g. TV, AV1, AV2, YC2, AV3, YC3, AV4, YC4).

**Note**  
If no video source has been connected, the PIP picture will be noisy.

### Swapping screens

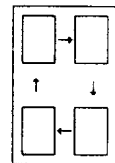
Press **Q**.  
The main screen will switch the picture with the PIP screen.



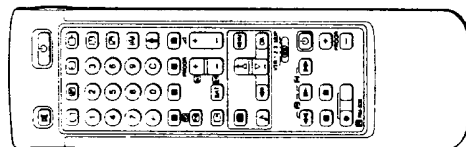
**Note**  
If a TV programme is on the PIP screen and a video source on the main picture, and you want to change channels, first press **t** and then the programme buttons or **PROGR +/-**.

### Changing the position of the PIP

Press **Q** repeatedly to change the position of the PIP screen within the main screen. There are four different positions available.



## 1-7. TELETEXT



**Note**  
Teletext errors may occur if the broadcasting signals are weak.

**With the simple side of the Remote Commander**  
You can switch teletext on and off, operate Fasttext, and directly select page numbers.

TV stations broadcast an information service called Teletext via the TV channels. Teletext service allows you to receive various information pages such as weather reports or news at any time you want. For advanced teletext operation, use the buttons on the Full-Function side of the Remote Commander.

## Direct Access Functions

### Switching Teletext on and off

- 1 Select the TV channel which carries the teletext broadcast you want to watch.
- 2 Press **Q** to switch on teletext.  
A teletext page will be displayed (usually the index page). If there is no teletext broadcast, P100 is displayed on the information line at the top of the screen.  
To switch teletext off  
Press **Q**.

### Selecting a teletext page

**With direct page selection**  
Use the number buttons to input the three digits of the chosen page number.  
If you have made a mistake, type in any three digits. Then re-enter the correct page number.

### With page-catching

- 1 Select a teletext page with a page overview (e.g. index page).
- 2 Press **Q** twice. "Page catching" will be displayed on the information line. The last digit of the first displayed page number flashes.
- 3 Using **Δ+** or **Δ-**, select the desired page and press **OK**.  
The requested page will appear in a few seconds.

### Accessing next or preceding page

Press **Q** (PAGE +) or **Q** (PAGE -).  
The next or preceding page appears.

## Superimposing the teletext display on the TV programme

- Press **Q** once in teletext mode or twice in TV mode.
- Press **Q** again to resume normal teletext reception.

### Preventing a teletext page from being updated

- Press **Q** (HOLD). The HOLD symbol "H" displayed on the information line.
- Press **Q** to resume normal teletext reception.

### Using Fasttext

With Fasttext you can access pages with one key stroke. When a Fasttext page is broadcast, a colour-coded menu will appear at the bottom of the screen. The colours of this menu correspond to the red, green, yellow and blue buttons on the Remote Commander.

Press the corresponding coloured button on the Remote Commander which corresponds to the colour-coded menu. The page will be displayed after some seconds.

**Note**  
Fasttext operation is only possible, if the TV station broadcasts Fasttext signals.



- 1 Press MENU. The menu will be superimposed on the teletext display. (See Fig. 34)
- 2 Using  $\cdot$  or  $\cdot$  - select the teletext function you want and press OK. (See Fig. 35)

See page 49 for information about presetting and operating the user pages.

The index will give you an overview of the contents of the elextext and the page numbers.

For convenient reading of a teletext page, you can enlarge the teletext display. After having selected the function, an information line **Top/Bottom/Full** will be displayed. (See Fig. 36)

Press  to resume normal teletext reception.

After having selected the function, you can watch a TV programme while waiting for a teletext page to be displayed. See Fig. 37)

## SUBTITLES

**REVEAL**

Answers to a quiz. The reveal option lets you disclose the information. After having selected the function, an information "REVEAL ON/OFF" will be displayed. (See Fig 38)

Press **⏮** to resume normal teletext reception.

our teletext service will inform you, if a time coded page is available. You may have a page (e.g. an alarm page) isolated at a certain time.

14 JUL 1980

• User Pages  
Index  
Input/Output  
Text Editors  
Utilities  
Networks  
Time Range  
Subrange  
Percent User Range

Search [ ] and press OK

[illegible]

Page 1 of 1

1

Revised 1/15

Fig. 38.

Press **Ⓢ** to resume normal teletext mode.

You may want to select a particular teletext page from several subpages which are rotated automatically. If you want to select one subpage, follow the operations below:

- 1 Using **+** or **-**, select ON for the SUBPAGE setting and press OK.
- 2 To select the desired subpage, enter four digits using **PROG** +/- or the number buttons. (e.g. enter 0002 for the second page of a sequence).

You can store up to 30 pages in the "Teletext page bank system". In this way you have quick access to the pages you watch frequently.

There are 5 "banks" (A to E) for 5 teletext stations. In each bank you can store 6 preferred pages (P1 to P6).

- 1 Press @ (if Teletext is not on already) and MENU to show the
- 2 TELETEXT Menu display.
- 3 Press Preset User Pages with + or - and press OK.
- 4 Select the desired bank with + or - and press OK. The
- 5 cursor will go to the first position (P1) of the preferred pages.
- 6 Input the three digits of your first preferred page with the
- 7 number buttons and press OK.
- 8 The cursor will go to the second position.
- 9 Repeat step 4 for the other 5 page numbers you want to
- 10 preset. If you do not want to preset all 6 page numbers
- 11 available, press OK without inserting any numbers
- 12 finished the presetting press OK repeatedly until the cursor
- 13 appears besides the next bank at the left margin.
- 14 Select Allocate Bank with + or - and press OK.
- 15 Select the programme position for which you want to preset
- 16 pages with + or - and press OK. (See Fig. 39)
- 17 Select the desired bank with + or - (Banks A to E are
- 18 available) and press OK.
- 19 Repeat steps 3 to 8 for the other 4 banks available.

**Select MENU.**

- 2 Select User Pages with  $\Delta$  or  $\nabla$  and press OK. A table of the stored preferred pages will be displayed. (See Fig. 40)
- 3 Select the desired page with  $\Delta$  or  $\nabla$  and press OK. The page will be displayed after some seconds.

[illegible]

Fla. 39.

USER PAGES BANK 8

■	PAGE 300
	PAGE 700
	PAGE 203
	PAGE 500
	PAGE 734
	PAGE 150

SELECT ☐ and press OK

Fla. 40.

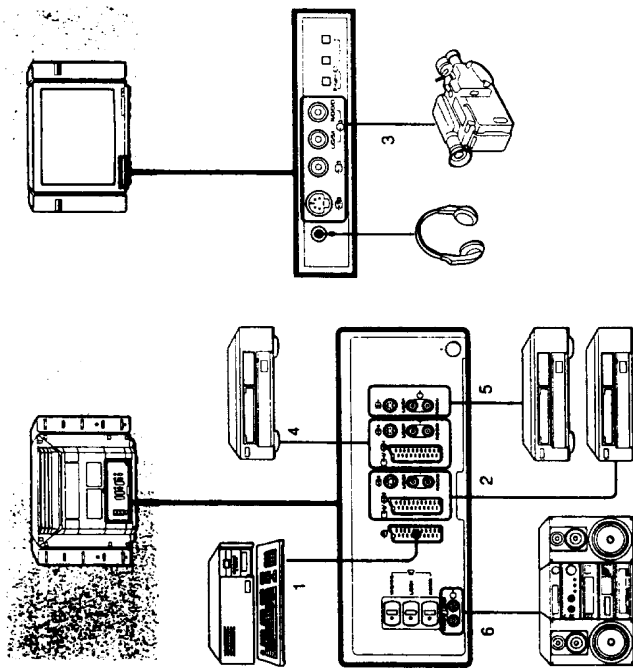
To cancel the request  
Press OK to set  
"OFF" for the T  
PAGE setting.



## 1-8. CONNECTING AND OPERATING OPTIONAL EQUIPMENT

### Connecting Optional Equipment

You can connect optional audio-video equipment to this TV such as VTRs, video disc players, and stereo systems.



To connect a VTR using the **||** terminal  
Connect the aerial output of the VTR to the aerial terminal **||** of the TV. Be sure that you tune in the video signal to programme number "0". For details see "Preset channels manually" on page 37.

If the picture or the sound is distorted  
Move the VTR away from the TV.

S-video input (Y/C)  
Input signals may be separated into Y (luminance or brightness) and C (chrominance) signals. Separating the Y and C signals prevents them from interfering with one another, and therefore improves picture quality (improves picture clarity). This TV is equipped with 3 S-Video input jacks through which these separated signals can be input directly.

When connecting a monaural VTR  
Connect only the white **○** jack to both the TV and VTR.

#### Acceptable input signal

Acceptable input signal	Available output signal
1 Normal audio/video and RGB signal	Video/audio from TV tuner
2 Normal audio/video and S video signal	Video/audio from selected source
3 Normal audio/video and S video signal	No outputs
4 Normal audio/video and S video signal	S video/audio displayed on TV screen (monitor out)
5 No inputs	S video/audio signal displayed on TV screen (monitor out)
6 No inputs	Audio signal (variable)

### Selecting input and output

This section explains how to view the video input picture (of the video source connected to your TV), and how to select the output signal using direct access buttons or the menu system.

#### Selecting Input

Press **⏮** repeatedly to select the input source.

The symbol of the selected input source will appear.

To go back to the normal TV picture

Press **⏮**.

#### Input modes

Symbol **⏮** Input signal

1 <b>⏮</b>	Audio/video input through the <b>⏮</b> 1 connector
2 <b>⏮</b>	RGB input through the <b>⏮</b> 1 connector
3 <b>⏮</b>	Audio/video input through the <b>⏮</b> 2/- <b>⏮</b> 2 connector
4 <b>⏮</b>	S video input through the <b>⏮</b> 2/- <b>⏮</b> 2 connector
5 <b>⏮</b>	Audio/video input through <b>⏮</b> 3 and <b>⏮</b> 3 on the front
6 <b>⏮</b>	S video input through the <b>⏮</b> 3 connectors on the front (4-pin connector)
7 <b>⏮</b>	Audio/video input through the <b>⏮</b> 4/- <b>⏮</b> 4 connector
8 <b>⏮</b>	S video input through the <b>⏮</b> 4/- <b>⏮</b> 4 or <b>⏮</b> 4 connector (4-pin connector)

You can also select the input mode using the **⏮** and **⏮** buttons on the TV. In this case, first select **⏮**, and then press **⏮** buttons to select the input.

#### Selecting the output

The **⏮** 2/-**⏮** 2 connector outputs the source input from the other connectors.

Press **⏮** repeatedly to select the output.

The symbol of the selected output source appears.

#### Output modes

Symbol **⏮** 2/-**⏮** 2 connector outputs

1 <b>⏮</b>	The audio/video signal from the <b>⏮</b> 1 connector
2 <b>⏮</b>	The audio/video signal from the <b>⏮</b> 2/- <b>⏮</b> 2 connector
3 <b>⏮</b>	The audio/S video signal from the <b>⏮</b> 2/- <b>⏮</b> 2 connector
4 <b>⏮</b>	The audio/video signal from the <b>⏮</b> 3, <b>⏮</b> 3 connectors
5 <b>⏮</b>	The audio/S video signal from the <b>⏮</b> 3, <b>⏮</b> 3 connectors
6 <b>⏮</b>	The audio/video signal from the <b>⏮</b> 4/- <b>⏮</b> 4 connector
7 <b>⏮</b>	The audio/S video signal from the <b>⏮</b> 4/- <b>⏮</b> 4 connector
8 <b>⏮</b>	The audio/video signal from the <b>⏮</b> 4/- <b>⏮</b> 4 connector
9 <b>⏮</b>	The audio/video signal from the <b>⏮</b> 4/- <b>⏮</b> 4 connector
10 <b>⏮</b>	The audio/video signal from the <b>⏮</b> 4/- <b>⏮</b> 4 connector
11 <b>⏮</b>	The audio/video signal from the <b>⏮</b> 4/- <b>⏮</b> 4 connector
12 <b>⏮</b>	The audio/video signal from the <b>⏮</b> 4/- <b>⏮</b> 4 connector
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95 <b>⏮</b>	The audio/video signal from the <b>⏮</b> 4/- <b>⏮</b> 4 connector
96 <b>⏮</b>	The audio/video signal from the <b>⏮</b> 4/- <b>⏮</b> 4 connector
97 <b>⏮</b>	The audio/video signal from the <b>⏮</b> 4/- <b>⏮</b> 4 connector
98 <b>⏮</b>	The audio/video signal from the <b>⏮</b> 4/- <b>⏮</b> 4 connector
99 <b>⏮</b>	The audio/video signal from the <b>⏮</b> 4/- <b>⏮</b> 4 connector
100 <b>⏮</b>	The audio/video signal from the <b>⏮</b> 4/- <b>⏮</b> 4 connector



## 1-9. FOR YOUR INFORMATION

### Troubleshooting

Here are some simple solutions to problems which may affect the picture and sound.

Problem	Solution
No picture (screen is dark), no sound	<ul style="list-style-type: none"> <li>• Plug the TV in.</li> <li>• Press <b>⓪</b> on the TV. (If <b>⓪</b> indicator is on, press <b>⓪</b> or a programme number on the Remote Commander.)</li> <li>• Check the aerial connection.</li> <li>• Check if the selected video source is on.</li> <li>• Turn the TV off for 3 or 4 seconds and then turn it on again using <b>⓪</b>.</li> </ul>
Poor or no picture (screen is dark), but good sound	<ul style="list-style-type: none"> <li>• Press <b>■</b> to enter the PICTURE CONTROL menu and adjust BRIGHTNESS, CONTRAST and COLOUR.</li> </ul>
Good picture but no sound	<ul style="list-style-type: none"> <li>• Press <b>↵</b>.</li> <li>• Check loudspeakers connection.</li> <li>• If <b>Ⓐ</b> is displayed on the screen, press <b>Ⓐ</b>.</li> </ul>
No colour for colour programmes	<ul style="list-style-type: none"> <li>• Press <b>■</b> to enter the PICTURE CONTROL menu, select RESET, then press <b>OK</b>.</li> </ul>
Remote Commander does not function.	<ul style="list-style-type: none"> <li>• Replace batteries.</li> </ul>

If you continue to have problems, have your TV serviced by qualified personnel. Never open the casing yourself.

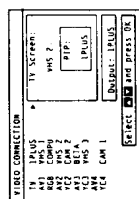


Fig. 41.

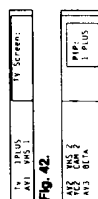


Fig. 42.

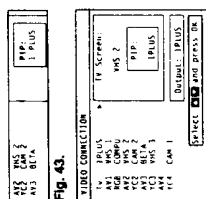


Fig. 43.

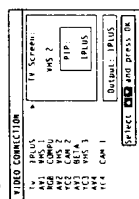


Fig. 44.

### Checking and selecting the input and output sources using the menu

You can display the menu to see which input sources are selected for the TV screen and PIP screen, and which output source is selected. You can also select them on the menu display.

- 1 Select Video Connection with **△** or **▽** and press **OK**. The VIDEO CONNECTION menu appears. (See Fig. 41)

You can see which source is selected for the TV and PIP input, and for the output. If you want to select the input and output on this menu, go on to the next step.

- 2 Select TV Screen (input source for the TV screen), PIP (input source for the PIP screen), or output (output source) with **△** or **▽**, and press **OK**. One of the source items changes colour. (See Fig. 42)

- 3 Select the desired source with **△** or **▽**. (See Fig. 43)

For details about each source, see the table on page 23.

- 4 Press **OK**. The selected source is confirmed, and the cursor appears. (See Fig. 44)

- 5 Repeat steps 2 to 4 to select the source for other inputs or outputs.

## Remote Control of Other Sony Equipment

You can use the TV Remote Commander to control most of Sony remote-controlled video equipment such as: Beta, 8mm or VHS VTRs or video disc players.

### Tuning the Remote Commander to the equipment

- 1 Set the VTR 1/2/3 MDP selector according to the equipment you want to control:

VTR 1: Beta or ED Beta VTR

VTR 2: 8mm VTR

VTR 3: VHS VTR

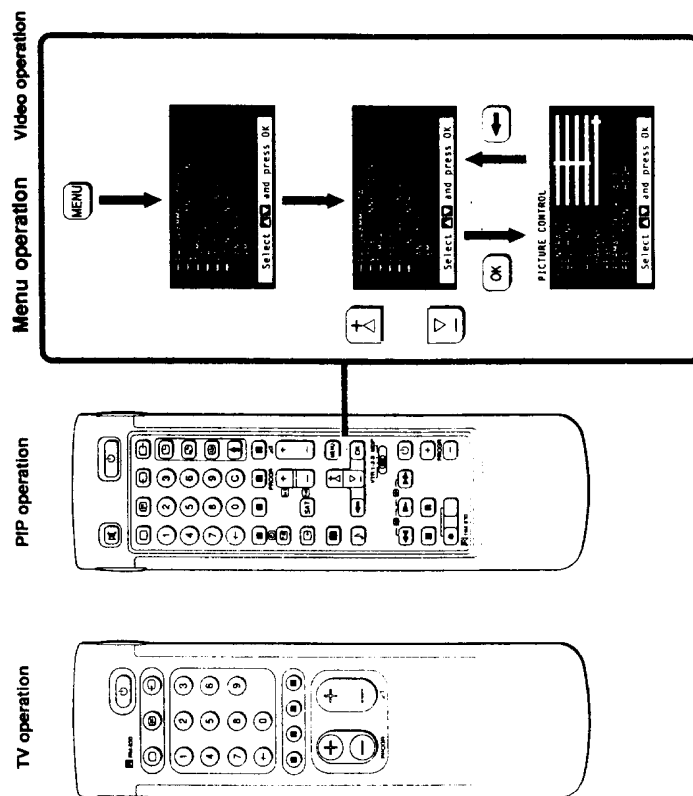
MDP: Video disc player

Use the buttons indicated in the illustration to operate the additional equipment.

- 2 If your video equipment is furnished with a COMMAND MODE selector, set this selector to the same position as the VTR 1/2/3 MDP selector on the TV Remote Commander.

If the equipment does not have a certain function, the corresponding button on the Remote Commander will not operate.

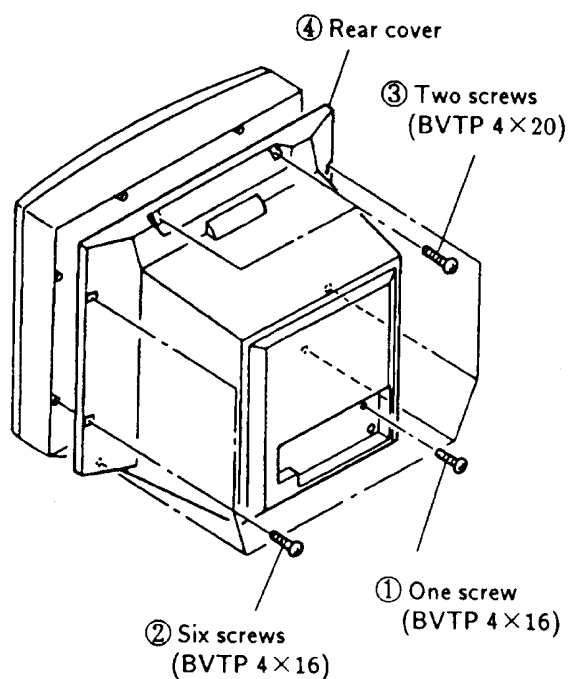
**When recording**  
When you use the **●** (record) button, make sure to press this button and the one to the right of it simultaneously.



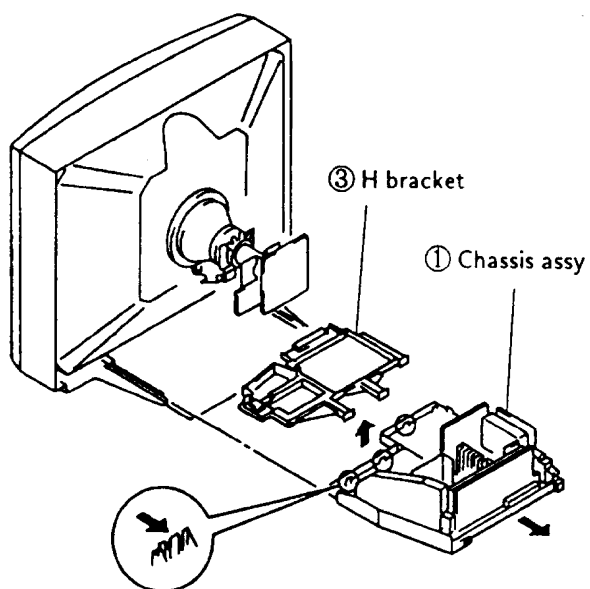


## SECTION 2 DISASSEMBLY

### 2-1. REAR COVER REMOVAL



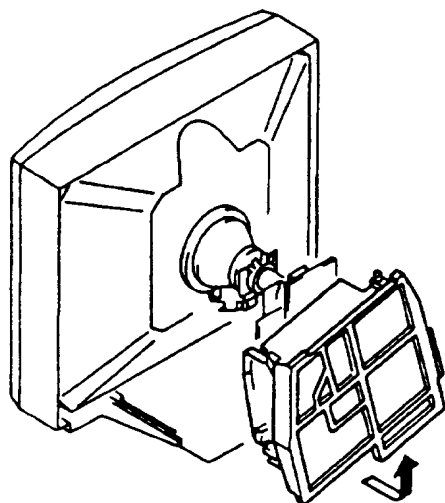
### 2-2. CHASSIS ASSY REMOVAL



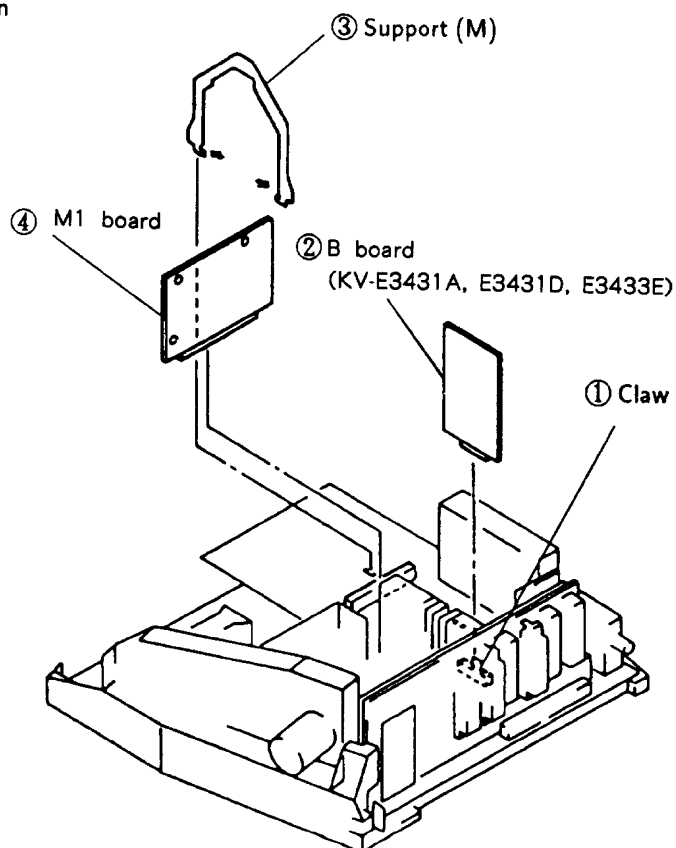
- ② Push the three claws of the main chassis in the direction of the arrow and remove the H bracket upwards.

### 2-3. SERVICE POSITION

- ※ Remove the H bracket from the main chassis assy and then perform the following servicing.  
(Refer to 2-2. CHASSIS ASSY REMOVAL)

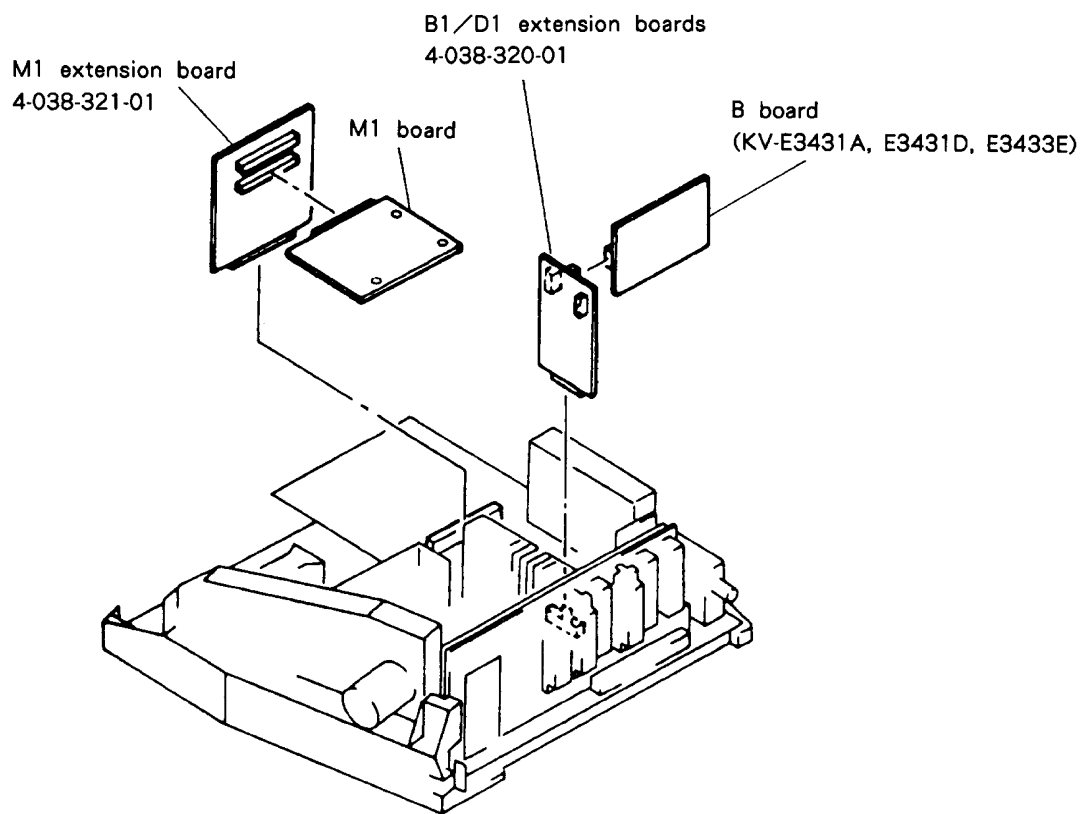


### 2-4. B, M1 BOARDS REMOVAL

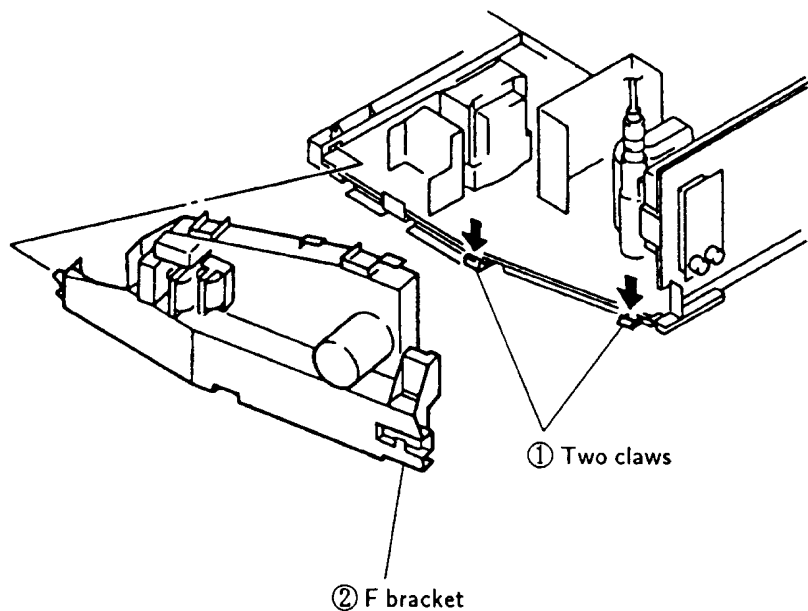




## 2-5. EXTENSION BOARD

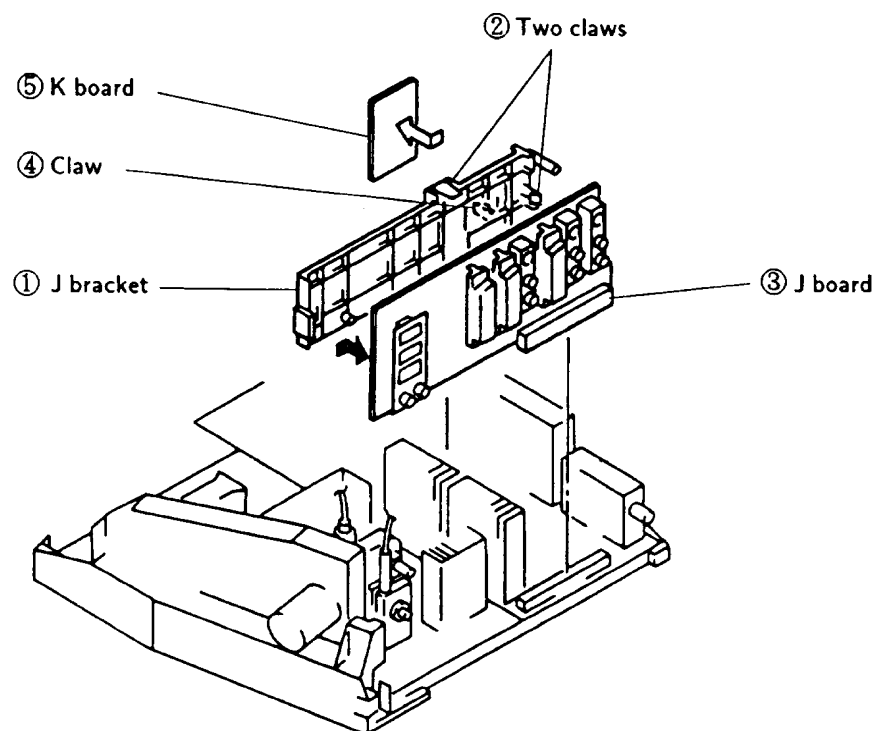


## 2-6. F BRACKET REMOVAL

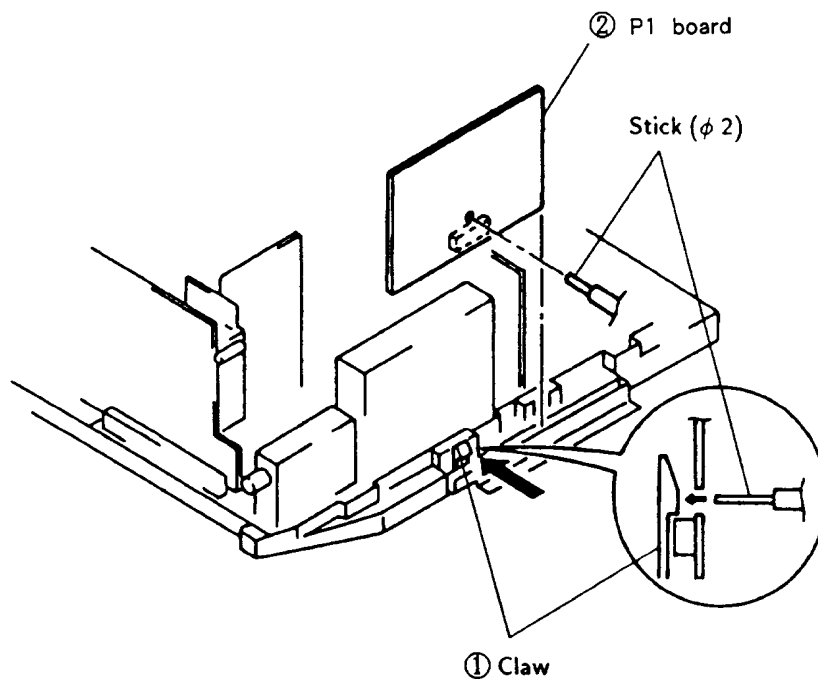




## 2-7. J AND K BOARDS REMOVAL



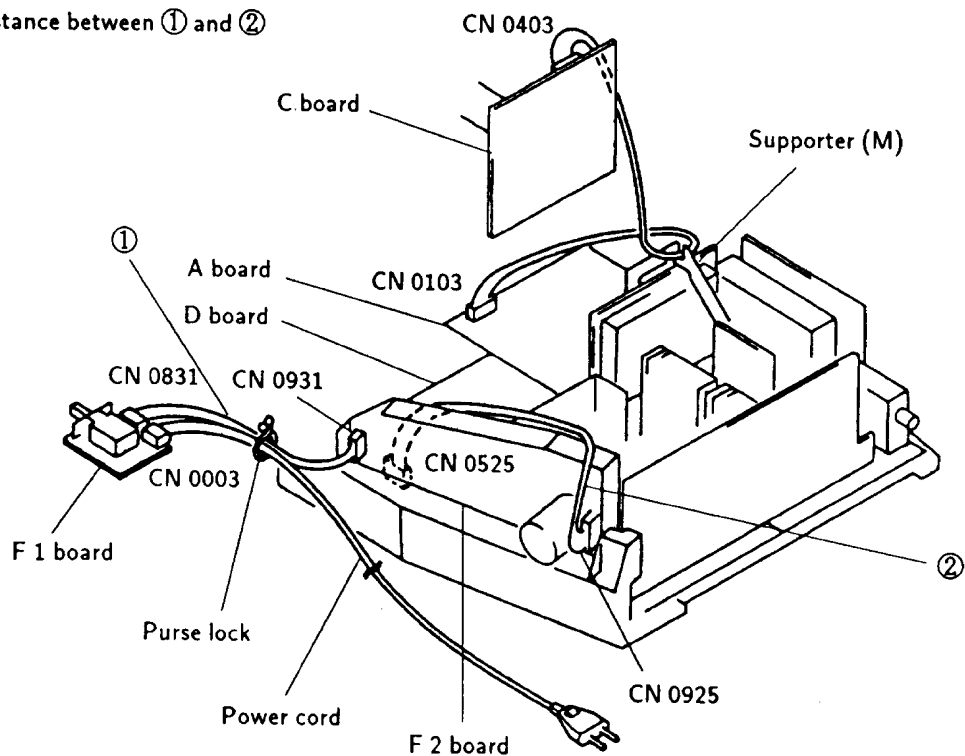
## 2-8. P BOARD REMOVAL



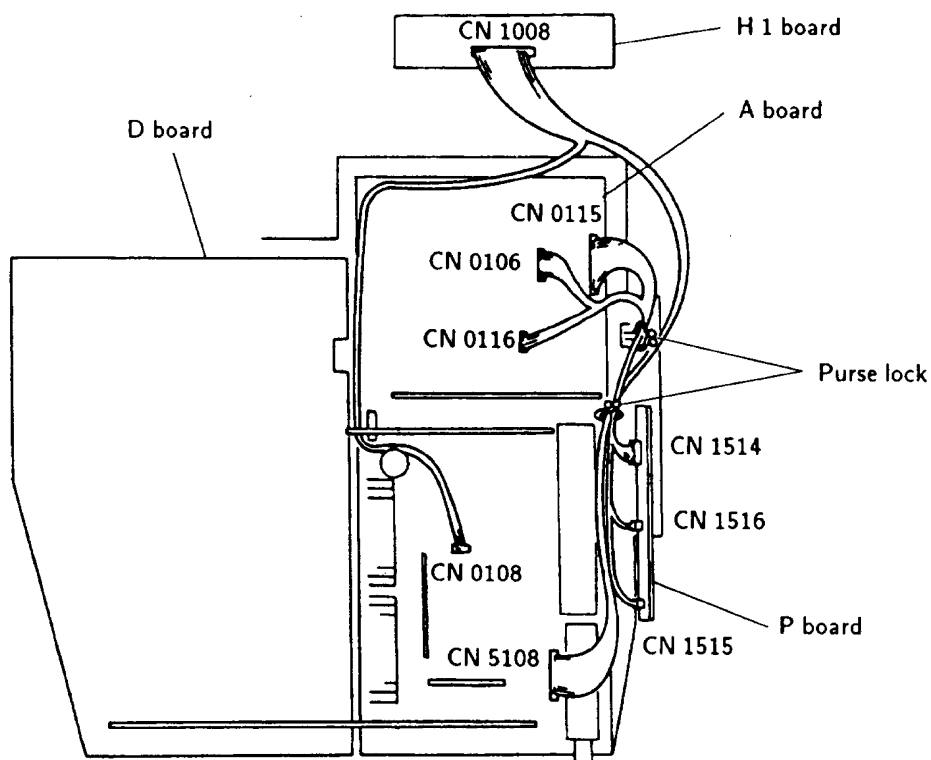


## 2-9-1. WIRE ROD

※ Keep distance between ① and ②

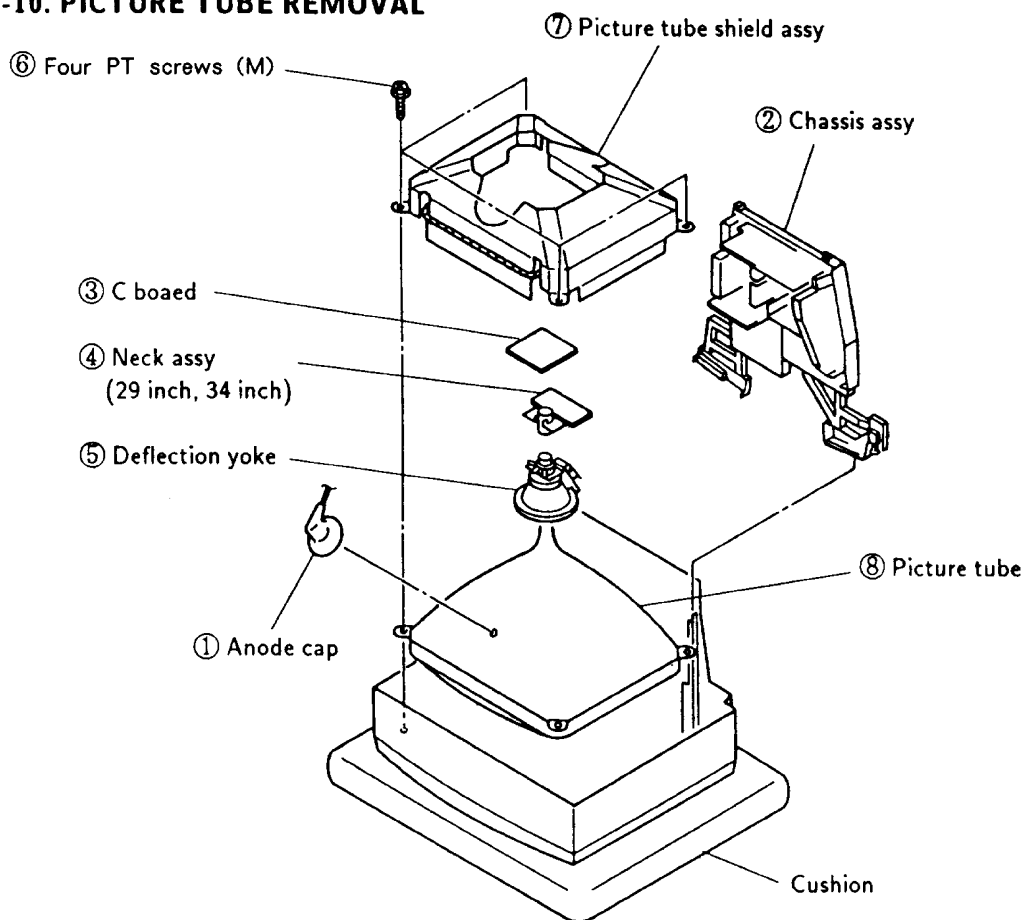


## 2-9-2. WIRE ROD





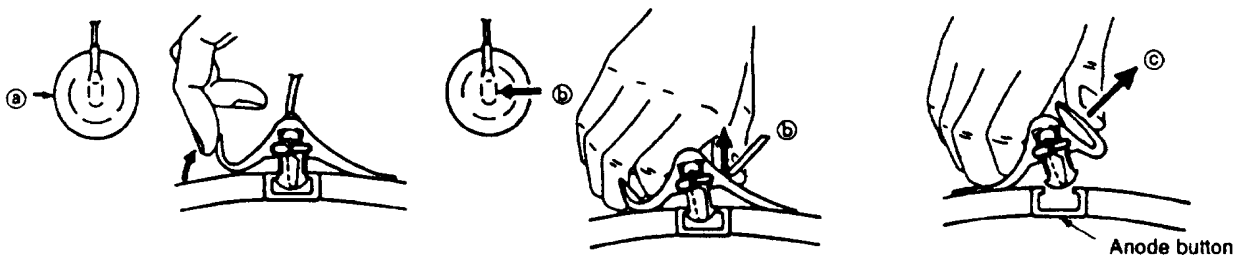
## 2-10. PICTURE TUBE REMOVAL



### • REMOVAL OF ANODE-CAP

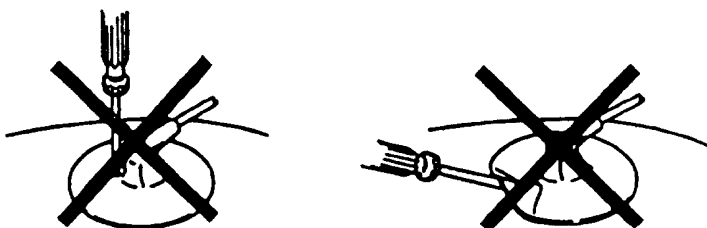
NOTE : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon painted on the CRT, after removing the anode.

### • REMOVING PROCEDURES



### • HOW TO HANDLE AN ANODE-CAP

- ① Don't hurt the surface of anode-caps with sharp shaped material!
- ② Don't press the rubber hardly not to hurt inside of anode-caps!  
A material fitting called as shatter-hook terminal is built in the rubber.
- ③ Don't turn the foot of rubber over hardly!  
The shatter-hook terminal will stick out or hurt the rubber.





## SECTION 3

### SET-UP ADJUSTMENTS

- When complete readjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there is specific instruction to the contrary, carry out these adjustments with the rated power supply.
- Unless there is specific instruction to the contrary, set the controls and switches this way :

● Contrast ..... 80% (or remote control normal)

⚙ Brightness ..... 50%

- Carry out the following adjustments in this order :

1. Beam landing
2. Convergence
3. Focus
4. White balance

**Note:** Testing equipment required.

1. Color bar/pattern generator
2. Degausser
3. DC power supply
4. Digital multimeter
5. Oscilloscope

#### Preparations :

- In order to reduce the influence of geomagnetism on the set's picture tube face it east or west.
- Switch on the set's power and degauss with the degausser.

#### 3-1. BEAM LANDING

1. Input the white signal with the pattern generator.  
 Contrast } normal  
 Brightness }
2. Position neck assy as shown in Fig.3-2.
3. Set the pattern generator raster signal to red.
4. Move the deflection yoke to the rear and adjust with the purity control so that the red is at the center and the blue and the green take up equally sized areas on each side. (See Fig.3-1 - 3-3)
5. Move the deflection yoke forward and adjust so that entire screen is red. (See Fig.3-1)
6. Switch the raster signal to blue, then to green and verify the condition.
7. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws.
8. If the beam does not land correctly in all the corners, use a magnet to adjust it. (See Fig.3-4)

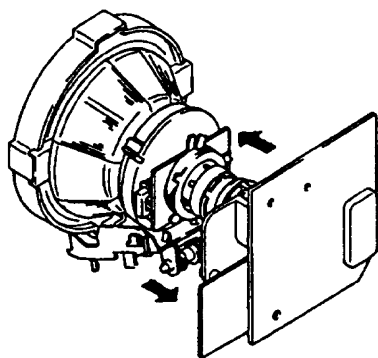


Fig.3-1

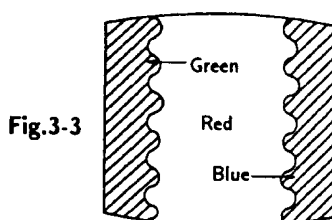
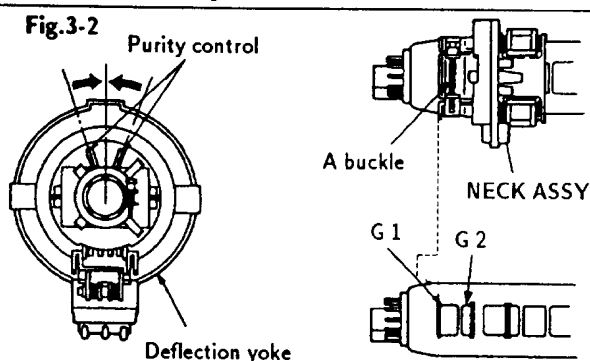


Fig.3-3

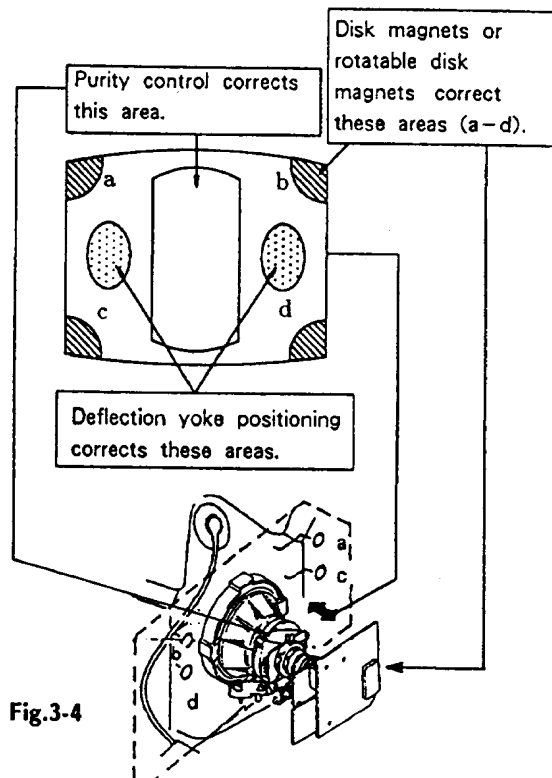


Fig.3-4

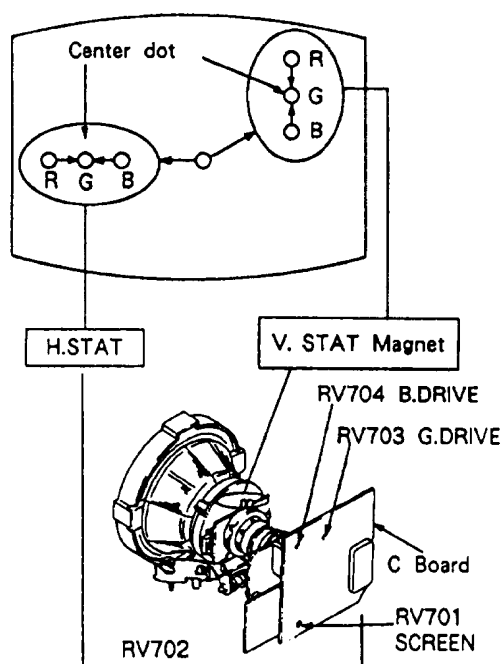


### 3-2. CONVERGENCE

#### Preparations :

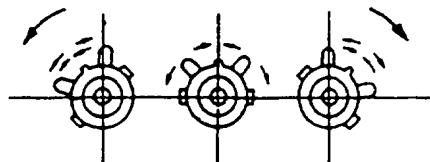
- Before starting this adjustment, adjust the focus, horizontal size, and vertical size.
- Minimize the brightness setting.
- Provide dot pattern.

#### (1) Horizontal and vertical static convergence

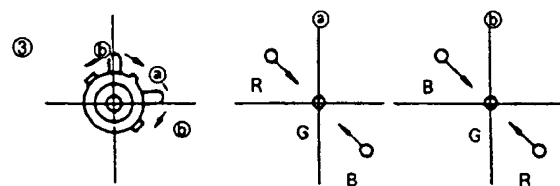
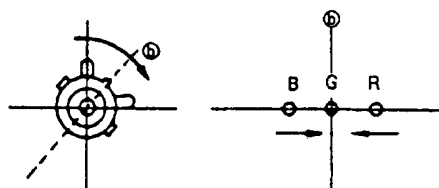
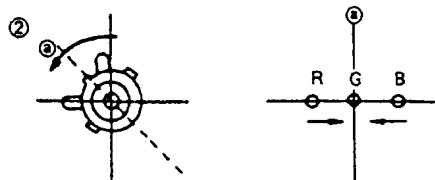
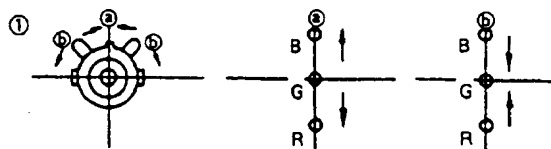


1. (Moving horizontally), adjust the H.STAT control so that the red, green, and blue points are on top of each other at the center of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green, and blue points are on top of each other at the center of the screen.
3. If the H.STAT variable resistor cannot bring the red, green, and blue points together at the center of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V. STAT magnet in the manner given below.  
(In this case, the H.STAT variable resistor and the V. STAT magnet influence each other)

- Tilt the V. STAT magnet and adjust the static convergence by opening or closing the V. STAT magnet.

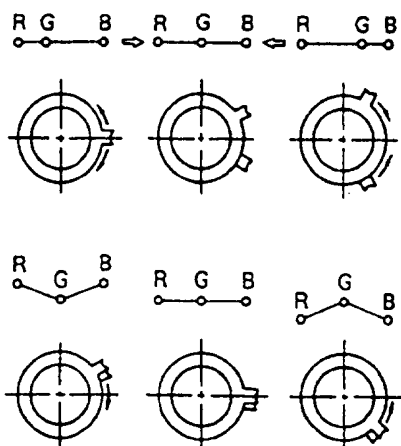


4. If the V. STAT magnet is moved in the direction of the (a) and (b) arrows, the red, green, and blue points move as shown below.

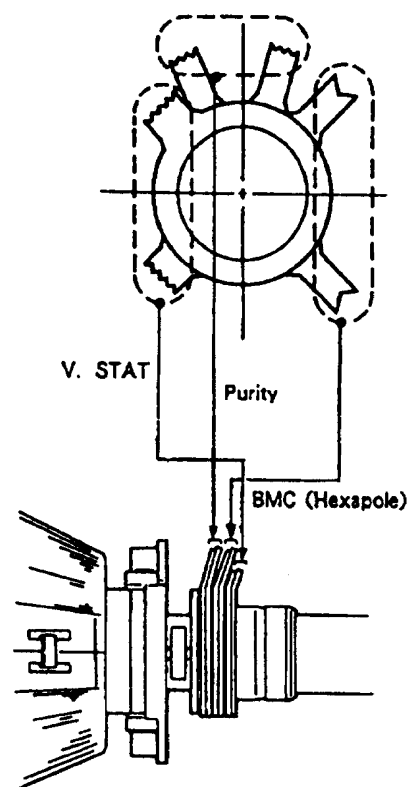




- Operation of BMC (Hexapole) Magnet



- The respective dot positions resulting from moving each magnet interact, so be sure to perform adjustment while tracking.  
Use the H.STAT VR to adjust the red, green, and blue dots so they coincide at the center of screen (by moving the dots in the horizontal direction).



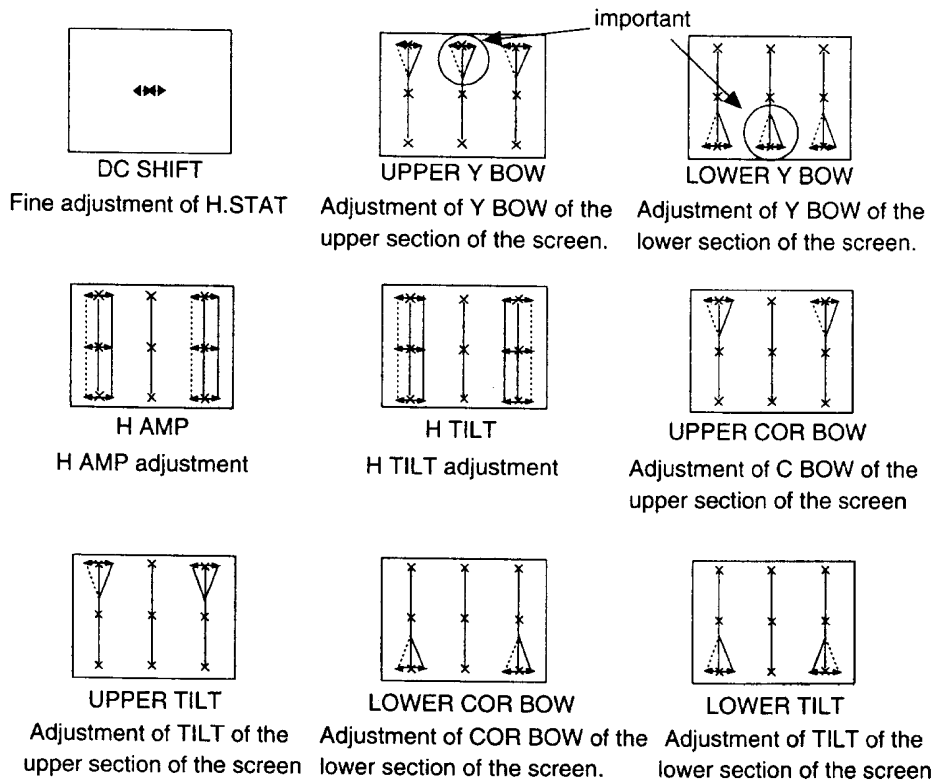


## (2) Dynamic convergence adjustment

1. Adjust the horizontal convergence located at the center position of the screen with the H.STAT VR.
2. Enter into service mode. (Refer to section 2 "Electrical Adjustment" on how to enter service mode).
3. Select CXA 1526 on menu.
4. Select each item in turn, and adjust in order that each item attains optimal convergence.
5. Press **[OK]** button to write the data.

CXA 1526		
1	DC SHIFT	(32)
2	UPPER Y BOW	(4)
3	LOWER Y BOW	(5)
4	H AMP	(48)
5	H TILT	(29)
6	UPPER COR BOW	(32)
7	UPPER TILT	
8	LOWER COR BOW	(32)
9	LOWER TILT	(32)

R.G.B. dot movement as seen on the screen of the set.



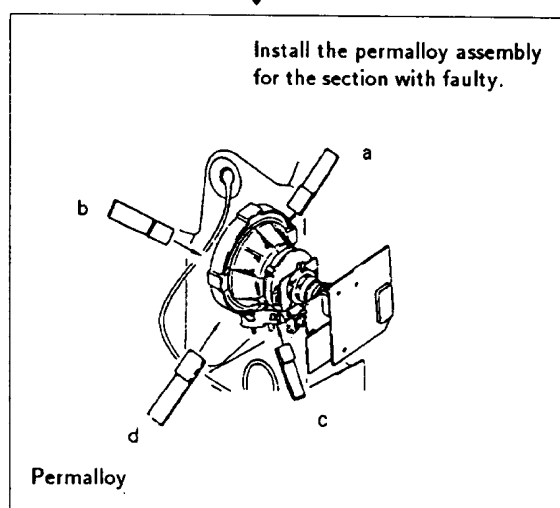
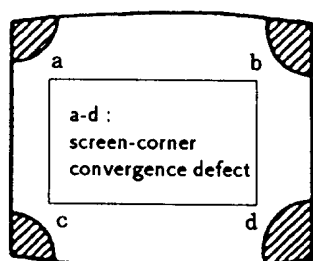
At this time, H.TILT, H.AMP, UPPER TILT, UPPER COR BOW, LOWER TILT, and LOWER COR BOW look the same, but the movement of the right

and left dots are reverse in all the TILT system. (Pay attention to the dotted lines).

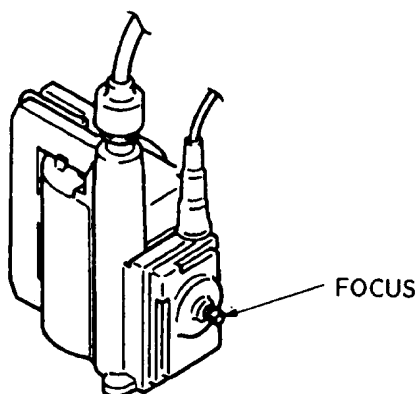


**(3) Screen corner convergence**

If you cannot adjust corner convergence properly, correct them with permalloy.

**3-3. FOCUS**

Adjust the focus to optimize the screen.

**3-4. WHITE BALANCE****Screen G2 Setting**

1. Input the dot signal from the pattern generator.
2. Set the picture brightness control to its lowest level.
3. Apply 180V DC to the R,G, and B cathodes with an external power supply.
4. While watching the picture, adjust G 2 control RV 701 (Screen) to the point just before the return lines disappear.

**White balance adjustment**

1. Receive all-white signal.
2. Enter into service mode. (Refer to the section 4 "Electrical Adjustment" to how to enter service mode.)
3. Select CXA1587S on menu.

09	SUB BRIGHT	ADJ.
10	SUB HUE	7
11	VM LEVEL	2
12	NR LEVEL	0
13	ABL MODE	0
14	G-DRIVE	ADJ.
15	B-DRIVE	ADJ.
16	G-AUTO CUT OFF	ADJ.
17	B-AUTO CUT OFF	ADJ.
18	R-MANUAL CUT OFF	ADJ.
19	G-MANUAL CUT OFF	ADJ.
20	B-MANUAL CUT OFF	ADJ.

4. Set picture to MAX.
5. Adjust G-DRIVE B-DRIVE with , buttons so that the white balance becomes optimum.
6. Press button to write the data for each item.
7. Set picture to MIN.
8. Adjust G-AUTO CUT OFF, B-AUTO CUT OFF, R-MANUAL CUT OFF, G-MANUAL CUT OFF and B-MANUAL CUT OFF with , buttons so that the white balance becomes optimum.
9. Press button to write the data for each item.



## SECTION 4

### CIRCUIT ADJUSTMENTS

#### 4-1. ELECTRICAL ADJUSTMENTS

Service adjustment to this model can be performed with the supplied remote commander RM-842.

##### HOW TO ENTER INTO SERVICE MODE

1. Turn on the main power switch of the set while pressing any two buttons on the front panel.

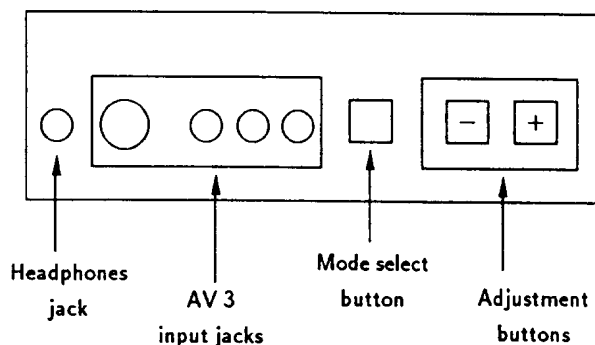


Fig.4-1

2. "TT" will appear on the upper right corner of the screen.

Command operation in service mode

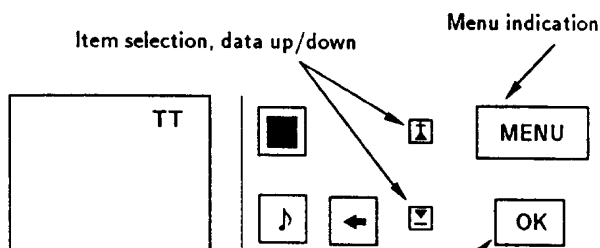


Fig.4-2

Fig.4-3

3. Press the **MENU** button of the commander to get the menu on screen.

MAIN MENU	
Programme Table	
Video Connection	
Picture Control	
Sound Control	
Timer	
Preset	
Language	
> DEMO	
Select < > and press OK	

Fig.4-4

4. Press the **▲** and **▼** buttons of the commander and move > to DEMO.
5. Press **OK** button to proceed to the next menu.
6. The menu of fig.4-5 will appear on screen. Select DEVICE corresponding to the adjustment item from the table on next page.

DEVICE	
Initialize	
> CXA1587S	
CXD 2018	
TDA 9145	
CXA 1526	
TDA 6612	
CXA 7948 A	
P/P service	
Select < > and press OK	

Fig.4-5

7. If adjustment item is CXA1587S, press the **▼** button and move > to CXA1587S.

##### CXA 1587 S

Item No.	Adjustment item	Data Amount
01	PICTURE	3
02	COLOR	1
03	BRIGHT	1
04	HUE	1
05	SHARPNESS	7
06	RGB PICTURE	3
07	SUB CONTRAST	ADJ.
08	SUB COLOR	ADJ.
> 09	SUB BRIGHT	ADJ.
10	SUB HUE	7
11	VM LEVEL	2
12	NR LEVEL	0
13	ABL MODE	0
14	G-DRIVE	ADJ.
15	B-DRIVE	ADJ.

8. Press **OK** button to get the next selection menu.
9. Press **▼** button and move > to the adjustment item and press **OK** button.
10. Press the **▲** and **▼** buttons to change the data in order to comply each standard.
11. Press **OK** button to write data.
12. Turn off the power to quit service mode when completing the adjustment.



## CXA 1587 S

01	PICTURE	53
02	COLOR	31
03	BRIGHT	31
04	HUE	31
05	SHARPNESS	7
06	RGB PICTURE	13
07	SUB CONTRAST	ADJ.
08	SUB COLOR	ADJ.
09	SUB BRIGHT	ADJ.
10	SUB HUE	7
11	VM LEVEL	2
12	NR LEVEL	0
13	ABL MODE	0
14	G-DRIVE	ADJ.
15	B-DRIVE	ADJ.
16	G-AUTO CUT OFF	ADJ.
17	B-AUTO CUT OFF	ADJ.
18	R-MANUAL CUT OFF	ADJ.
19	G-MANUAL CUT OFF	ADJ.
20	B-MANUAL CUT OFF	ADJ.
21	GAMMA LEVEL	0
22	DC TRANSFER RATIO	3
23	DINAMIC PICTURE	0
24	Y FILTER ADJ	ADJ.
25	Y DELAY TIME	15
26	Y DELAY SWITCH 1	0
27	Y DELAY SWITCH 2	1
28	SHARPNESS LIMIT	ON
29	ALL BLK	OFF
30	H SHIFT	31
31	DAC TEST	ON
32	PRE/OVER SHOOT	7
33	SHARPNESS FO	2
34	SUB SHARPNESS	3
35	R MUTE	OFF
36	G MUTE	OFF
37	B MUTE	OFF

CXA 1526		ADJ.
1	DC SHIFT	(32)
2	UPPER Y BOW	(4)
3	LOWER Y BOW	(5)
4	H.AMP	(48)
5	H TILT	(29)
6	UPPER COR BOW	(32)
7	UPPER TILT	(32)
8	LOWER COR BOW	(32)
9	LOWER TILT	(32)

34 inch only

38	AGING 1	OFF
39	AGING 2	OFF
40	AKB OFF	ON
41	INHIBIT RGB	OFF
42	FORCED RGB	OFF
43	V/2 V	OFF
44	AXIS	PAL
45	HUE SW	OFF
46	V EXTENTION	OFF
47	AFC 1	1
48	AFC 2	0
49	AFC OFF	ON
50	REF.POSITION	0

## CXD 2018 Q

01	V SIZE	ADJ.
02	V SHIFT	ADJ.
03	S CORRECTION	ADJ.
04	V LINEARITY	ADJ.
05	H SIZE	ADJ.
06	PIN AMP	ADJ.
07	TILT	ADJ.
08	UPPER CORNER	ADJ.
09	LOWER CORNER	ADJ.
10	V BOW	ADJ.
11	ANGLE	ADJ.
12	HV COMP.V	13
13	HV COMP.H	8
14	FRAME SHIFT	OFF
15	FREE RUN 60 Hz	OFF
16	SYSTEM 60 Hz	OFF
17	ASPECT WIDE	OFF
18	DOUBLE SCAM	OFF
19	INTERLACE	ON
20	H SHIFT	32
21	N/S CORRECTION	ADJ.

Typical Value (OSD based)when receiving PAL Philips pattern.

TDA 6612	ADJ.
Stereo-Separation	(30)

Should be adjusted twice 4 : 3 and 16 : 9 mode.



**Y FILTER ADJUSTMENT**

1. Input PAL RED pattern.
2. Connect an oscilloscope to CN 0403 ① pin (R IN) on the C board.
3. Enter into service mode and press 3, 8.
4. Adjust data by  $\triangle$  or  $\nabla$  to minimize the chroma element of CN 0403 ① pin.

**SUB BRIGHTNESS ADJUSTMENT**

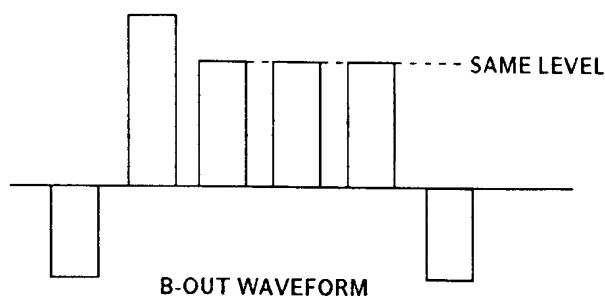
1. Input Phillips pattern.
2. Enter into service mode and press 23.
3. Adjust data so that 0-IRE of the grey scale and CUT -OFF 20-IRE glitter slightly.

**SUB CONTRAST ADJUSTMENT**

1. Input a video that contains small 100% area on the Black Back ground.
2. Enter into service mode and press 01 to have PIC max followed by 21.
3. Adjust data so that 2.5 Vp-p can be obtained at ① CN 0403 (R IN).

**SUB COLOR ADJUSTMENT**

1. Input PAL color bar.
2. Connect an oscilloscope to CN 0403 ③ pin (B IN) on the C board.
3. Enter into service mode and press 22 of CXA 1587 S, 8 SUB COLOR.
4. Adjust data so that the right sides of the waveform will be the same.

**STEREO-SEPARATION ADJUSTMENT**

1. Input 1 kHz stereo signal to the L-ch and 400 Hz stereo signal to the R-ch.
2. Enter into service mode and press 19.
3. Adjust data so that sound does not leak to the R-ch and the L-ch.

**DRIVE AND CUT OFF**

See direct test mode list attached and refer to sub brightness or such for adjustment method.

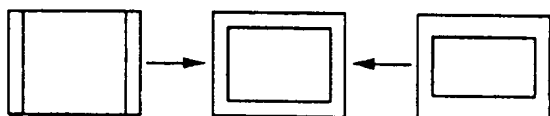


**DEFLECTION SYSTEM ADJUSTMENT**

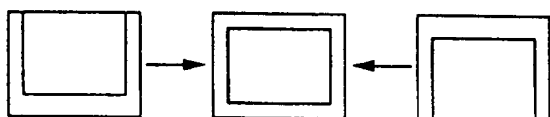
1. Enter into service mode and select CXD 2018 Q.
2. Select and adjust each item in order to get an optimum image.

01	V SIZE	ADJ.
02	V SHIFT	ADJ.
03	S CORRECTION	ADJ.
04	V LINEARITY	ADJ.
05	H SIZE	ADJ.
06	PIN AMP	ADJ.
07	TILT	ADJ.
08	UPPER CORNER	ADJ.
09	LOWER CORNER	ADJ.
10	V BOW	ADJ.
11	ANGLE	ADJ.
12	HV COMP.V	13
13	HV COMP.H	8
14	FRAME SHIFT	OFF
15	FREE RUN 60 Hz	OFF
16	SYSTEM 60 Hz	OFF
17	ASPECT WIDE	OFF
18	DOUBLE SCAM	OFF
19	NON INTERLACE	ON
20	H SHIFT	32
21	N/S CORRECTION	ADJ.

V SIZE



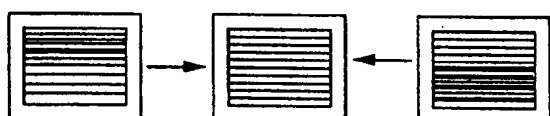
V SHIFT



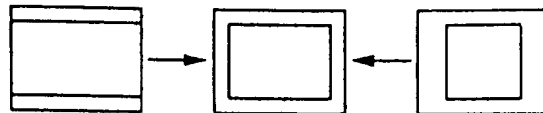
S CORRECTION



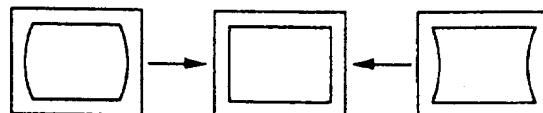
V LINEARITY



H SIZE



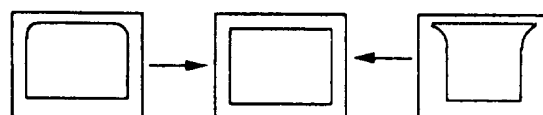
PIN AMP



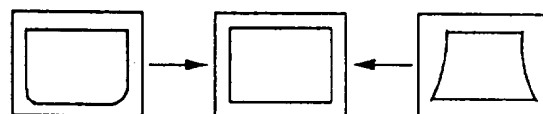
TILT



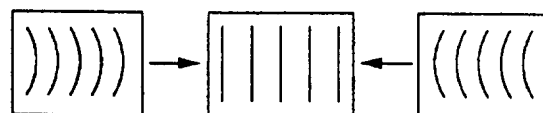
UPPER CORNER PIN



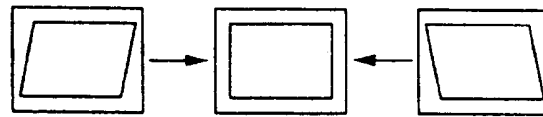
LOWER CORNER PIN



V BOW



ANGLE



H SHIFT



3. Press **OK** button to write the data.

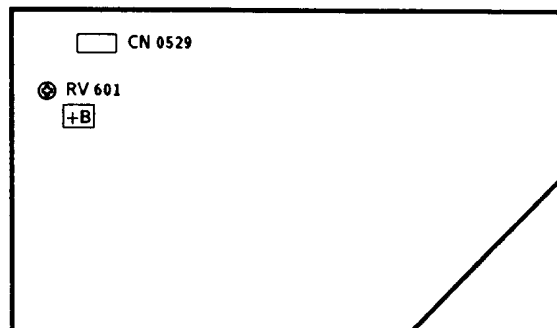
If menu display may disturb the adjustment press **⏏** to clear, to resume it, press **⏏** again.



## 4-2. VOLUME ELECTRICAL ADJUSTMENTS

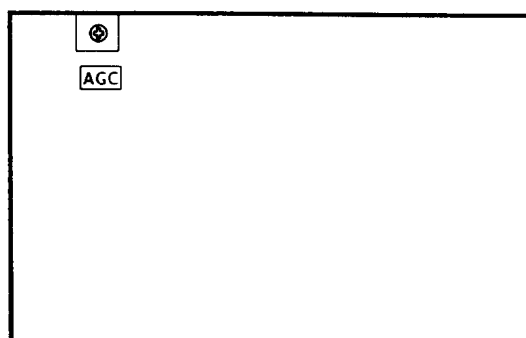
### +B (+135 V) ADJUSTMENT (RV 601)

#### D BOARD



1. Turn on the power of the TV set.
2. Connect a digital multi-meter to ① pin of CN 0529 on D board.
3. Adjust RV 601 on D board to +135 V.

### AGC ADJUSTMENT (IF BLOCK)



1. Receive off-air signal.
2. Adjust AGC VR so that there is no snow noise and cross-modulation.
3. Change receiving channel and confirm status.



### 4-3. TEST MODE 2 :

Is available by pressing Test button two times, OSD "TT" appears. The functions described bellow are available by pressing the two numbers. To release the Test Mode 2, press two times 0, or switch TV in Standby Mode.

00	switch Test Mode 2 off
01	picture maximum
02	picture minimum
03	Volume 35%
04	Volume 50%
05	Volume 65%
06	Volume 80%
07	Aging Condition (Volumin., Picture max., Brightness max., Aging 2 Mode of CXA 1587S, TDA 2595 is locked to CXA 1587S via PIN 34 of $\mu$ -Con.)
08	Shipping Condition (Analog Values are RESET due to factory setting, Prog 1 is selected, TT Mode is switched off)
09	dummy
10	Tenth entry is deleted
11	Balance
12	Hue
13-14	dummy
15	Read factory setting from NVM Reads Volume, Balance, Treble, Bass, Brightness, Contrast, Hue, Sharpness, Colour values from ROM to the actual used values (Last Power Memory)
16	Save actual used values as RESET values Memorize actual used values Balance, Treble, Bass, Hue, Sharpness at RESET position in NVM
17	Preset Level for AV Sources
18	dummy
19	Stereo Seperation
20	Tenth entry is deleted
21	Sub Contrast
22	Sub Colour
23	Sub Brightness
24-29	dummy

30	Tenth entry is deleted
31	Green Drive
32	Blue Drive
33	Green Cut Off (Auto Cut Off)
34	Blue Cut Off (Auto Cut Off)
35	Red Cut Off (Manual Cut Off) (Auto Cut Off is switched off)
36	Green Cut Off (Manual Cut Off) (Auto Cut Off is switched off)
37	Blue Cut Off (Manual Cut Off) (Auto Cut Off is switched off)
38	Y-Filter adjustment (Trap is switched off and TDA 9145 is switched in forced NTSC Mode)
39	dummy
40	Tenth entry is deleted
41	Default setting of CXA 1587S (Only in Plog 99 available)
42	Default setting of CXA 2018Q (Only in Plog 99 available)
43	Default setting of CXA 1526 (Only in Plog 99 available)
44	(all Port High) Not yet
45	(all Port High) Not yet
46-48	dummy
49	Erase the NVM Testbyte (this byte detects already stored NMV's) After selecting this function, switch TV Off and On $\rightarrow$ the NVM will be preset by $\mu$ -Controller. (Not the channel data)

Note: For No. 35, 36, 37 and 38 special pressing (AKB, forced Color Mode, Trap) is selected. After selecting a new Test Mode Number, the AKB is switched ON, the Trap is switched On and TDA 9145 is switched to Auto Search Mode.

In Test Mode 2 the Menu display is switchable by Speaker-Off button.



#### 4-4. ERROR MESSAGE

Self diagnosis system can operates as follows.

- When MP can't get the acknowledge back from the device, LED starts flashing according to the table as attached.

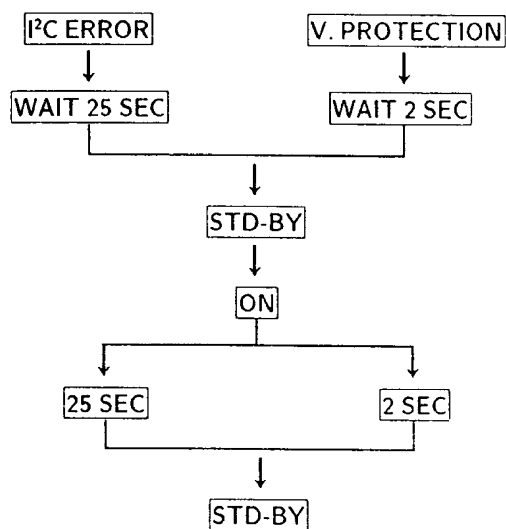


TABLE OF ERRORS

ERROR COUNT	IC TYPE	FUNCTION
1	I <sup>2</sup> C BUS	SDA low
2	X 24 C 16	EEPROM
3	SDA 3202	Tuner PII
4	TDA 9145	Colour decoder
5	CXA 1587S	RGB/Jungle
6	TDA 6612	Sound processor
7	CXD 2018Q	V deflection
8	CXA 1545	AV switch
11	SDA 5248	Text
13		V protection

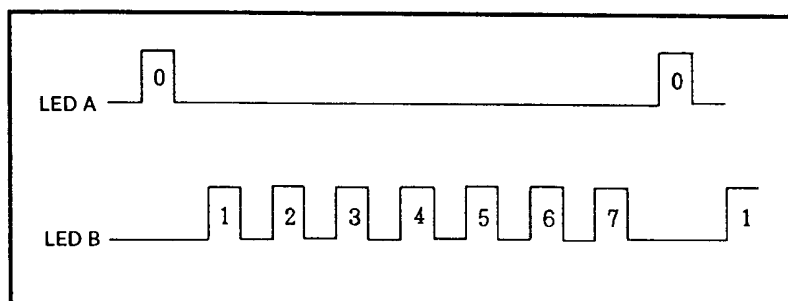
Stand by LED  
blinking

No IK return

#### 4-5. ERROR I<sup>2</sup>C BUS DIAGNOSIS SYSTEM IN AE-2A CHASSIS AVAILABLE

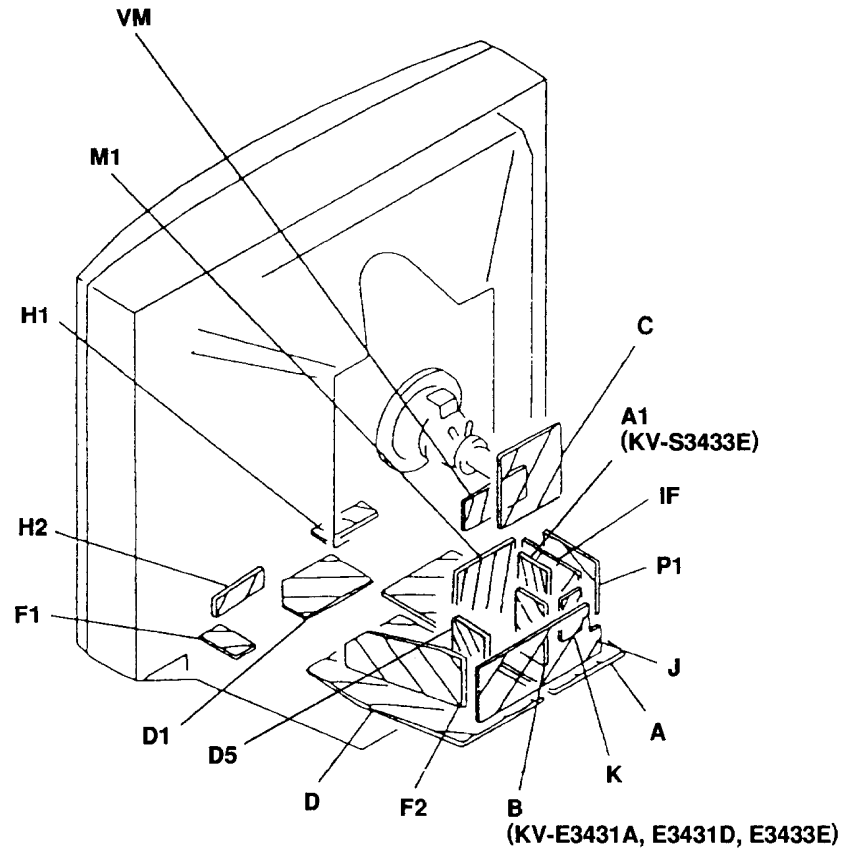
For all ICs in AE-2A chassis which are necessary to get picture and sound there is a built in error I<sup>2</sup>C Bus diagnosis system.

In case of no acknowledge bit, LED A and LED B starts blinking as shown.



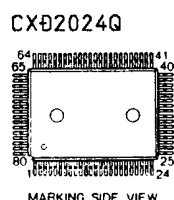
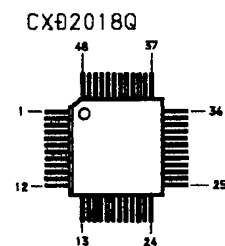
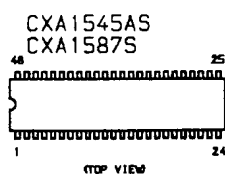


## 5-2. CIRCUIT BOARD LOCATION

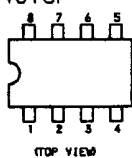




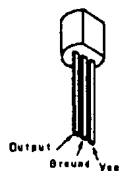
## 5-4. SEMICONDUCTORS



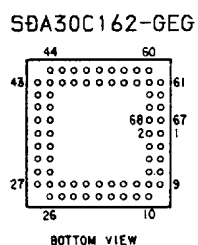
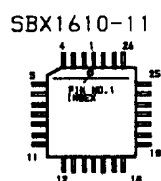
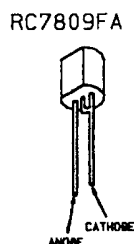
LM358D  
LM393P  
LM358P  
T0A2822M  
T0A4605-3  
TEA2114  
μPC358C  
μPC393C  
X24C16P



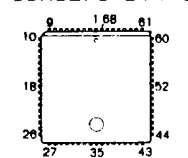
MC78L08ACPRP  
MC78L12ACPRP



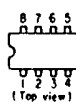
NJM78L05A  
NJM78L05F  
NJM78M09FA



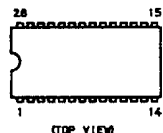
S0A5273-B14-GEG



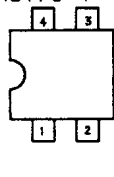
S0A9085



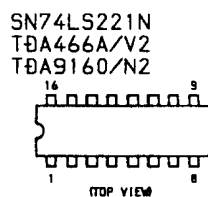
S0A91872X-GEG  
S0A91883X-GEG  
T0A6612



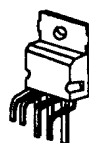
SFH617G-1



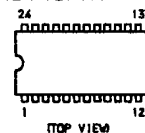
1. VCC  
2. NC  
3. Vout  
4. GND



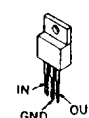
T0A2052  
T0A8138  
T0A8179S



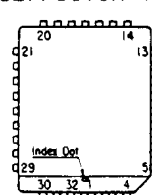
T0A8443B  
T0A9145/N1



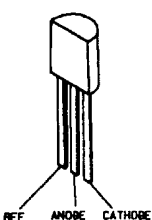
TEA7605



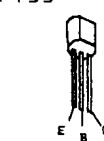
TMS27PC010A-15FML



TL431CLP



BF199



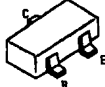
BF871



BUZ91A-E3155



0TA124EK  
0TA144EK  
0TA144TK  
0TC114EK  
0TC124EK  
0TC144EK  
2SA1037K-R  
2SA1162-G  
2SC1623-L5L6  
2SC2412K-T-146-R  
2SC2412K-T-146-QR  
2SC2413KQ



JA101-Q  
JC501-Q-AMMO  
2SA733-K  
2SA1091-Q  
2SC1890A-D  
2SC2551-Q



2SA1220A-K  
2SB772-Q  
2SC2688-LK



2SA1837



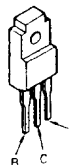
2SB734-34  
2SC2958  
2SD774-34



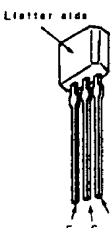
2SB1186A  
2SC3298B-Y  
2SD1763A



2SC4793



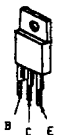
2SC2785-HFE



2SC4927-01



2SD798A-P  
2SD2012



2SD2061





25D2096-EF



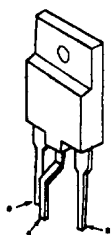
Ø10SC6M



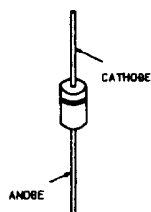
ESAB92-02



2SK1916-53-F50



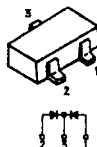
ØGP20G  
ERC25-065  
RGP02-20EL-6394  
RU30ALFS1  
RU3AM



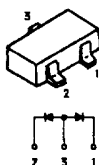
ESAC92M-02



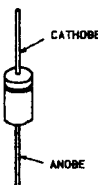
MA152WK



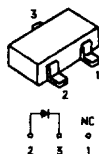
ØAN202K  
ØAP202K  
1S2836



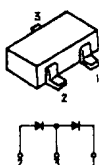
EL1Z  
ERB44-06  
GP08Ø  
RGP10GPKG23  
RGP15GPKG23  
R2K-V1  
1N4148A-T265



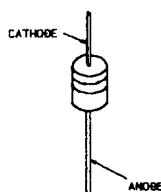
MA3030-H (TK)  
MA3039H-TX  
MA3047L-TX



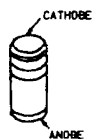
ØA204K



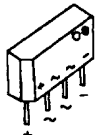
ERA85-009  
MTZJ-T-77-12B  
MTZJ-T-77-13C  
MTZJ-T-77-15A  
MTZJ-T-77-2.2A  
MTZJ-T-77-3.6A  
MTZJ-T-77-30B  
MTZJ-T-77-33C  
MTZJ-T-77-39C  
MTZJ-T-77-5.6A  
MTZJ-T-77-5.6B  
MTZJ-T-77-7.5A  
MTZJ-T-77-9.1  
MTZN-1013  
RØ12ES-B2  
RØ5.6ES-B1  
RØ5.6ES-B2  
RØ6.2ES-B2  
RØ7.5ES-B2



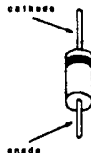
MA3051L-TX



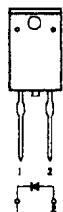
1SS226



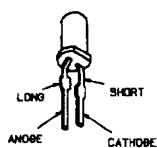
RGP02-17EL-6433



Ø5L60



LØ201VR



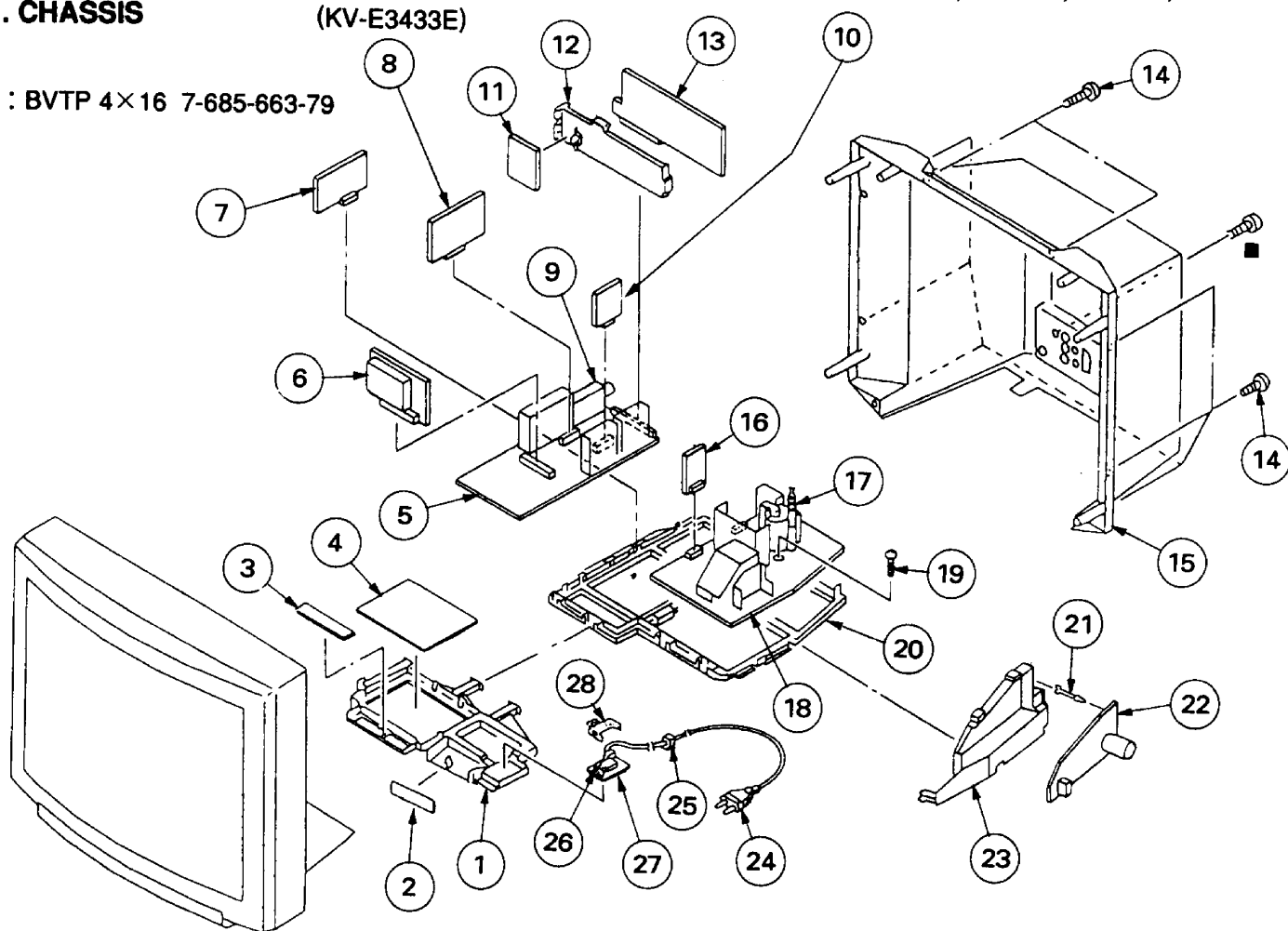


## 6-1. CHASSIS

(KV-E3433E)

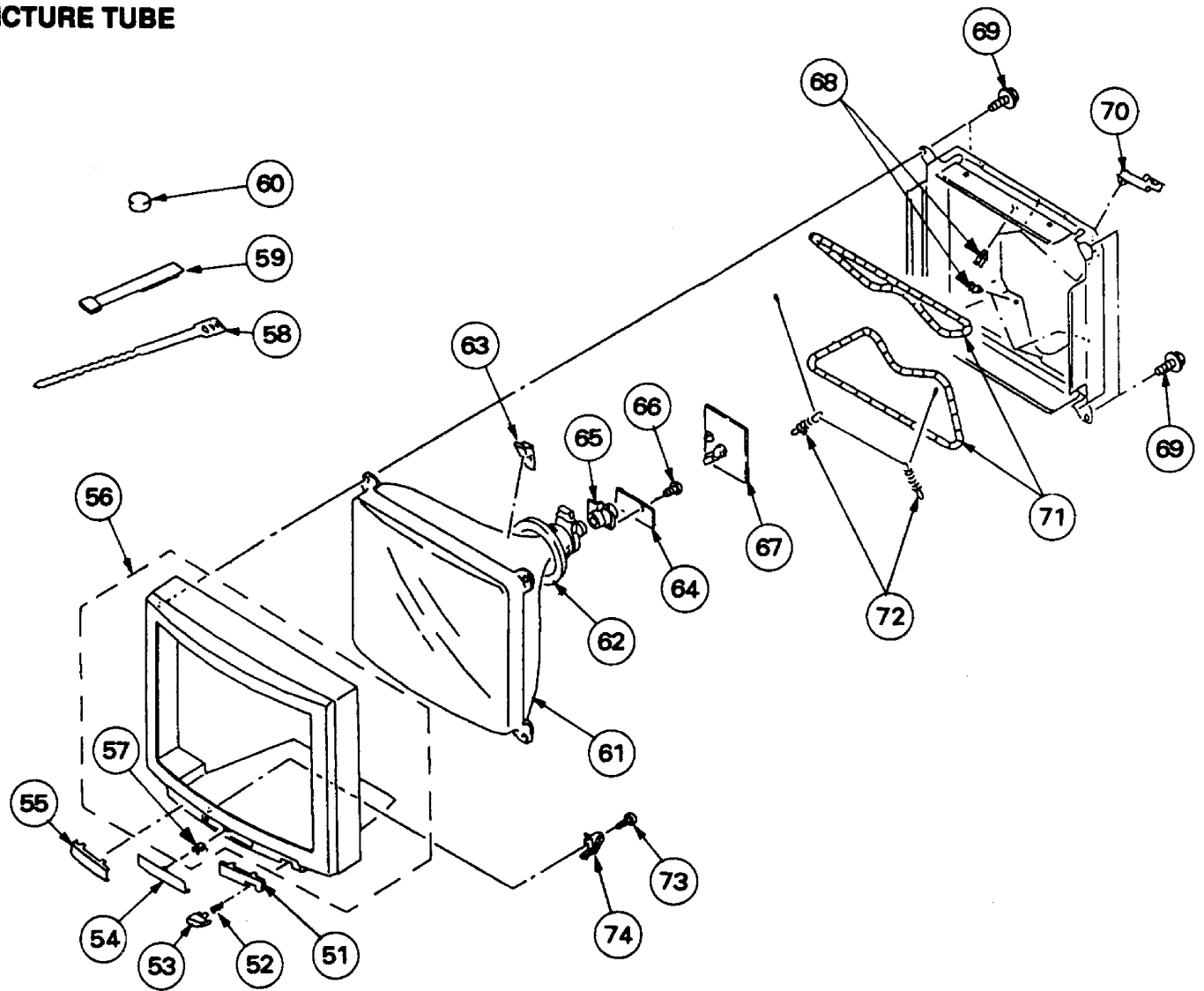
(KV-E3431A, E3431D, E3433E)

■ : BVTP 4×16 7-685-663-79



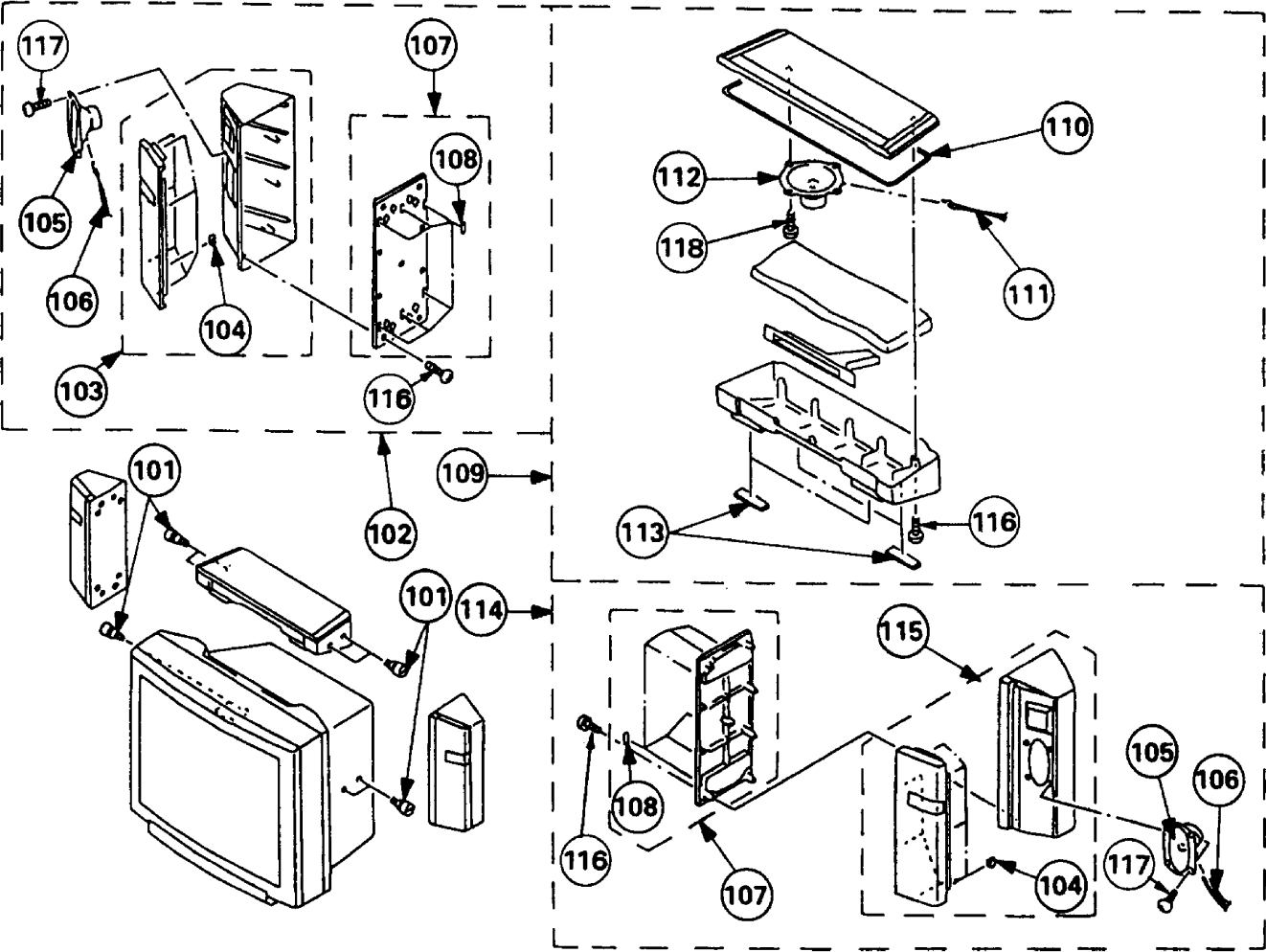


**6-2. PICTURE TUBE**





6-3. SPEAKER

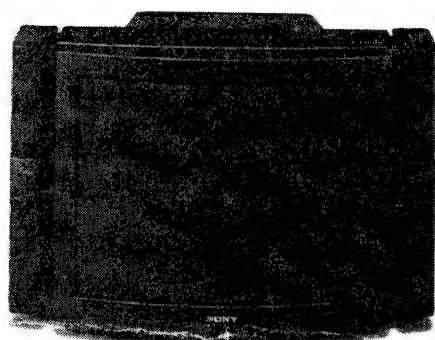




# KV-E2531D/E2931D/E3431D KV-E2531B/E2931B/E3431B

RM-830 RM-830 6159 RM-832

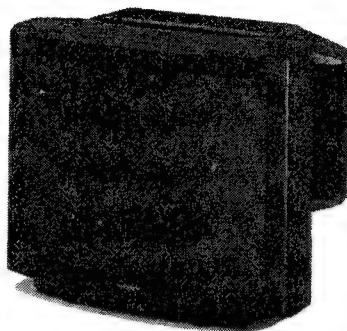
## SERVICE MANUAL



(Photo : KV-E2531D/ E2931D,  
E2531B/ E2931B)



RM-830



(Photo : KV-E3431D, E3431B)



RM-832

### AEP Model

KV-E2531D  
Chassis No. SCC-F18A-A  
KV-E2931D  
Chassis No. SCC-F18B-A  
KV-E3431D  
Chassis No. SCC-F18C-A

### French Model

KV-E2531B  
Chassis No. SCC-F32A-A  
KV-E2931B  
Chassis No. SCC-F32B-A  
KV-E3431B  
Chassis No. SCC-F32C-A

## AE-2 CHASSIS

### MODELS OF THE SAME SERIES

KV-E2531D/E2931D/E3431D	
KV-E2531B/E2931B/E3431B	

### SPECIFICATIONS

#### 【KV-E2531D/E2931D/E3431D】

Television system B/G/H, D/K  
Channel coverage PAL B/G/H VHF: E2-E12 UHF: E21-E69  
CABLE TV (1) : S1-S41  
CABLE TV (2) : S01-S05, M1-M10, U1-U10  
ITALIA VHF: A-H2 (C) UHF: 21-69  
D/K VHF: R01-R12  
UHF: R21-R69

#### 【KV-E2531B/E2931B/E3431B】

Television system B/G/H, D/K L, I  
Channel coverage L VHF: F02-F10 UHF: F21-F69  
CABLE: B-Q  
B/G/H VHF: E2-E12 UHF: E21-E69  
CABLE TV (1) : S1-S41  
CABLE TV (2) : S01-S05, M1-M10, U1-U10  
ITALIA VHF: A-H2 (C) UHF: 21-69  
D/K VHF: R01-R12  
UHF: R21-R69  
I UHF: B21-B69

Color system PAL, SECAM, NTSC3.58, NTSC4.43  
Stereo system GERMAN stereo  
Picture tube Hi-Black Trinitron tube  
Approx. 63 cm (25 inches)  
(Approx. 59 cm picture measured diagonally)  
110°-degree deflection  
Approx. 72 cm (29 inches)  
(Approx. 68 cm picture measured diagonally)  
110°-degree deflection  
Approx. 86.0 cm (34 inches)  
(Approx. 80.0 cm picture measured diagonally)  
110°-degree deflection

-Continued to next page-

TRINITRON® COLOR TV  
**SONY®**





**KV-E2531D/E2931D/E3431D**  
**KV-E2531B/E2931B/E3431B**  
**RM-830 RM-830 RM-832**

**Inputs/Outputs Terminals**

**(REAR)**

- 1 21-pin Euro connector (CENELEC standard)
- Inputs for audio and video signals
  - inputs for RGB
  - outputs of TV video and audio signals
- 2/➤ 2 21-pin Euro connector
  - inputs for audio and video signals
  - inputs for S video
  - outputs for audio and video signals (selectable)
- 4/➤ 4 21-pin Euro connector
  - inputs for audio and video signals
  - inputs for S video
  - outputs for audio and video signals (monitor out)
- 2, ➤ 4 S video inputs
  - 4 pin DIN
- Audio inputs (L, R) -phono jacks
- S video output - 4 pin DIN
- Audio outputs - phono jacks
- Audio outputs (variable) - phono jacks
- External speaker terminals : 2 pin
- Woofer terminal : 2 pin

**(FRONT)**

- 3 Video input-phono jack
- Audio input-phono jacks
- 3 S video input 4-pin DIN
- ⌚ Headphone jack : Stereo minijack

**Sound output**

2×11W RMS (side speakers), 35W music power (woofer)

**Power consumption**

2×30W (side speakers), 35W (woofer)  
 106.5Wh (KV-E2531D) 108Wh (KV-E2531B)  
 115Wh (KV-E2931D) 122Wh (KV-E2931B)  
 139Wh (KV-E3431D) 139Wh (KV-E3431B)

**Dimensions incl. speakers**

Approx. 756 x 493 x 468 mm (w/h/d) (KV-E2531D/E2531B)  
 Approx. 837 x 553 x 513 mm (w/h/d) (KV-E2931D/E2931B)  
 Approx. 822 x 659 x 587mm (w/h/d) (KV-E3431D/E3431B)

**Weight incl. speakers**

Approx. 40 kg (KV-E2531D/E2531B)  
 Approx. 53 kg (KV-E2931D/E2931B)  
 Approx. 78 kg (KV-E3431D/E3431B)

**Supplied accessories**

RM-830 Remote Commander (1)  
 (KV-E2531D/E2931D/E2531B/E2931B)  
 RM-832 Remote Commander (1)  
 (KV-E3431D/E3431B)

**Other features**

IEC designation R6 batteries (2)  
 Digital comb filter (High resolution)  
 PIP (Picture-in-picture)  
 TOPTXT

**[RM-830/832]**

**Remote control system**

infrared control

**Power requirements**

3V dc  
 2 batteries IEC designation R6 (size AA)

**Dimensions**

Approx. 65 × 222 × 21mm (w/h/d)

**Weight**

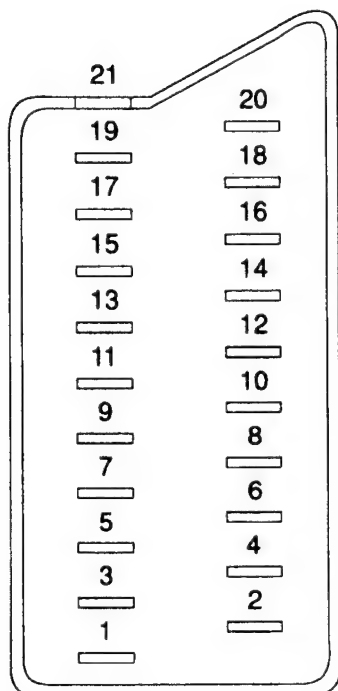
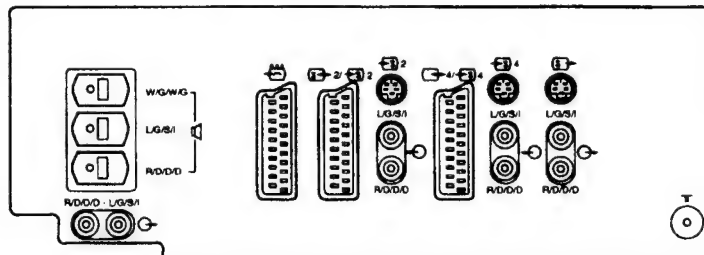
Approx. 157g (Not including Batteries)

Design and specifications are subject to change without notice.

Model name	KV-E2531D	KV-E2531B	KV-E2931D	KV-E2931B	KV-E3431D	KV-E3431B
Item						
Pal Comb	ON	ON	ON	ON	ON	ON
PiP	ON	ON	ON	ON	ON	ON
RGB Priority	ON	OFF	ON	OFF	ON	OFF
Woofer Box	ON	ON	ON	ON	ON	ON
Scart 1	ON	ON	ON	ON	ON	ON
Scart 2	ON	ON	ON	ON	ON	ON
Front In (3)	ON	ON	ON	ON	ON	ON
Scart 4	ON	ON	ON	ON	ON	ON
Dyn. Convergence	OFF	OFF	OFF	OFF	ON	ON
Projector	OFF	OFF	OFF	OFF	OFF	OFF
AxB in 16:9 mode	ON	ON	ON	ON	ON	ON
Norm B/G	ON	ON	ON	ON	ON	ON
Norm I	OFF	ON	OFF	ON	OFF	ON
Norm D/K	ON	ON	ON	ON	ON	ON
Norm AUS	OFF	OFF	OFF	OFF	OFF	OFF
Norm L	OFF	ON	OFF	ON	OFF	ON
Norm SAT	OFF	OFF	OFF	OFF	OFF	OFF
Norm N	OFF	OFF	OFF	OFF	OFF	OFF
Language Preset	Deutsch	Francais	Deutsch	Francais	Deutsch	Francais



21 pin connector (1, 2/4)



Pin No	1	2	4	Signal	Signal level
1	○	○	○	Audio output B (right)	Standard level: 0.5Vrms Output impedance: less than 1kohm*
2	○	○	○	Audio input B (right)	Standard level: 0.5Vrms Input impedance: More than 10kohms*
3	○	○	○	Audio output A (left)	Standard level: 0.5Vrms Output impedance: less than 1kohm*
4	○	○	○	Ground (audio)	
5	○	○	○	Ground (blue)	
6	○	○	○	Audio input A (left)	Standard level: 0.5Vrms Input impedance: More than 10kohms*
7	○	●	●	Blue input	0.7V±3dB, 75ohms, positive
8	○	○	○	Function select (AV control)	High state (9.5—12V): Part mode Low state (0—2V): TV mode Input impedance: More than 10kohms Input capacitance: Less than 2nF
9	○	○	○	Ground (green)	
10	○	○	○	Open	
11	○	●	●	Green	Green signal: 0.7V±3dB, 75ohms, positive
12	○	○	○	Open	
13	○	○	○	Ground (red)	
14	○	○	○	Ground (blanking)	
15	○	—	—	Red input	0.7V±3dB, 75ohms, positive
	—	○	○	(S signal) croma input	0.3V±3dB, 75ohms, positive
16	○	●	●	Blanking input (Ys signal)	High state (1—3V) Low state (0—0.4V) Input impedance: 75ohms
17	○	○	○	Ground (video output)	
18	○	○	○	Ground (video input)	
19	○	○	○	Video output	1V±3dB, 75ohms, positive Sync: 0.3V(—3, +10dB)
20	○	—	—	Video input	1V±3dB, 75ohms, positive Sync: 0.3V(—3, +10dB)
	—	○	○	Video Input/Y (S signal)	1V±3dB, 75ohms, positive Sync: 0.3V(—3, +10dB)
21	○	○	○	Common ground (plug, shield)	

○ connected

● unconnected (open)

\* At 20 Hz—20kHz

4 pin connector (1)

Pin No	Signal	Signal level
1	Ground	
2	Ground	
3	Y (S signal) input	1V±3dB 75ohm, positive Sync 0.3V <sup>-3</sup> <sub>+10</sub> dB
4	C (S signal) input	0.3V±3dB 75ohm, positive





## TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>	<u>Section</u>	<u>Title</u>	<u>Page</u>
1.	GENERAL		4.	CIRCUIT ADJUSTMENTS	
1-1.	Overview .....	5	4-1.	Electrical Adjustments .....	26
1-2.	Tuning in to TV Stations .....	6	4-2.	Volume Electrical Adjustments .....	30
1-3.	Additional Presetting Functions .....	7	4-3.	Test Mode 2 : .....	31
1-4.	Watching the TV .....	9	4-4.	Error Message .....	32
1-5.	Adjusting and Setting the TV Using the Menu .....	10	4-5.	Error II C Bus Diagnosis System in AE2 Chassis Available .....	32
1-6.	PIP (Picture in Picture) .....	11			
1-7.	Teletext .....	11			
1-8.	Connecting and Operating Optional Equipment .....	13			
1-9.	For Your Information .....	14	5.	DIAGRAMS	
2.	DISASSEMBLY		5-1.	Block Diagrams (1) .....	33
2-1-1.	Rear Cover Removal (25 inch, 29 inch) .....	15	5-2.	Block Diagrams (2) .....	37
2-1-2.	Rear Cover Removal (34 inch) .....	15	5-3.	Circuit Boards Location .....	41
2-2-1.	Chassis Assy Removal (25 inch, 29 inch) .....	15	5-3.	Printed Wiring Boards and Schematic Diagrams .....	41
2-2-2.	Chassis Assy Removal (34 inch) .....	15	• F1, F2, K, H1, H2, J Boards .....	42	
2-3.	Service Position .....	16	• A Board .....	49	
2-4.	B1, M and V Boards Removal .....	16	• V, D Boards .....	57	
2-5.	Extension Board .....	17	• M Board .....	65	
2-6.	F Bracket Removal .....	17	• D1, P Boards .....	72	
2-7.	J and K Boards Removal .....	18	• B1, VM, IF, C Boards .....	79	
2-8.	P Board Removal .....	18	5-4.	Semiconductors .....	86
2-9-1.	Wire Rod .....	19			
2-9-2.	Wire Rod .....	19	6.	EXPLODED VIEWS	
2-10.	Picture Tube Removal .....	20	6-1.	Chassis (KV-E2531D/ E2531B/ E2931D/ E2931B) .....	88
3.	SET-UP ADJUSTMENTS		6-2.	Picture Tube (KV-E2531D/ E2531B/ E2931D/ E2931B) .....	89
3-1.	Beam Landing .....	21	6-3.	SPEAKER (KV-E2531D/ E2531B/ E2931D/ E2931B) ....	90
3-2.	Convergence .....	22	6-4.	CHASSIS (KV-E3431D/ E3431B) .....	91
3-3.	Focus .....	25	6-5.	Picture Tube (KV-E3431D/ E3431B) .....	92
3-4.	White Balance .....	25	6-6.	SPEAKER (KV-E3431D/ E3431B) .....	93
			7.	ELECTRICAL PARTS LIST .....	94

### (CAUTION)

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

### WARNING!!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.  
 THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

### SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK  $\Delta$  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

### (ATTENTION)

APRES AVOIR DECONNECTE LE CAP DE L'ANODE, COURT-CIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.

### ATTENTION!!

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHÂSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÉ LORS DE TOUT DÉPANNAGE. LE CHÂSSIS DE CE RÉCEPTEUR EST DIRECTEMENT RACCORDÉ À L'ALIMENTATION SECTEUR.

### ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET PAR UNE MAPQUE  $\Delta$  SUR LES SCHÉMAS DE PRINCIPE, LES VUES EXPLOSÉES ET LES LISTES DE PIÈCES CONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÈCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR SONY.

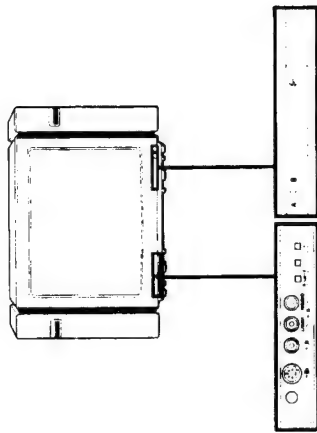


# SECTION 1 GENERAL

## 1-1. OVERVIEW

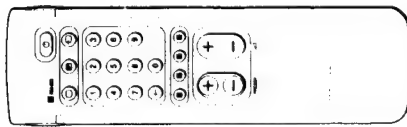
This section briefly describes the buttons and controls on the TV set and on the Remote Commander. For more information, refer to the pages given next to each description.

### TV set - front



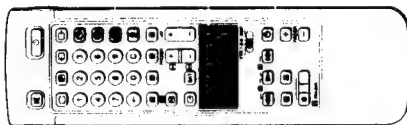
Symbol	Name	Refer to page
⏻	Main power switch	42
⏻	Standby indicator	42
A-O-B	Stereo A/B indicators	44
🎧	Headphones jack	50
📺 3, 📺 3, 📺 3	Input jacks (S-video/video/audio)	50
📺 P-V	Function selector (Programme/volume/input)	43
⬅️ ➡️	Adjustment buttons for function selector	43

### Remote Commander



**Note**  
The SAT button does not operate with this TV.

### TV/Teletext operation



TV/Teletext operation  
PIP operation  
Menu operation  
Video operation

Full-Function side

This section is extracted from instruction manual.

### TV-operation

Symbol	Name	Refer to Page
🔇	Mute on/off button	43
⏻	Standby button	42
📺	TV power on/TV mode selector button	42
📺	Teletext button	43
📺	Input mode selector	43
📺	Output mode selector	51
1,2,3,4,5,6,7,8,9, and 0	Number buttons	42
⬅️ ➡️	Double-digit entering button	42
📺	Direct channel entering button	41
📺	Volume control button	42
PROG +/-	Programme selectors	42
📺	Teletext page access buttons	47
📺	Picture adjustment button	44
📺	Sound adjustment button	44
📺	On-screen display button	43
📺	Teletext hold button	47
📺	Time display button	43
📺	Fastext buttons	47

### PIP (Picture-in-picture) operation

Symbol	Name	Refer to Page
📺	PIP on / off button	46
📺	PIP source selector	46
📺	Swap button	46
📺	PIP position changing button	46

### Menu operation

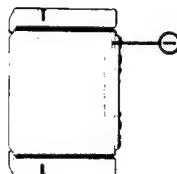
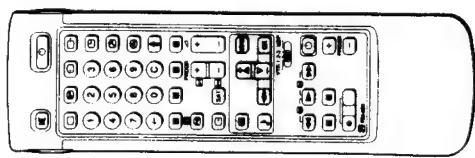
Symbol	Name	Refer to Page
MENU	Menu on / off button	36
+/-	Select buttons	36
OK	OK (confirming) button	36
⬅️ ➡️	Back button	36

### Video operation

Symbol	Name	Refer to Page
VTR1/2/3	Video equipment selector	52
MDP	Video equipment operation buttons	52
PROG +/-		



## 1-2. TUNING IN TO TV STATIONS



### 1 Display the Menu

- Depress **0** on the TV.
- The TV will switch on. If the standby indicator on the TV is lit, press **0** or a number button on the Remote Commander.
- Press the **MENU** button.
- The main menu appears.



Fig. 1.

### 2 Choose a language

- Select Language with the **Δ** or **∇** button and press the OK button.
- The LANGUAGE menu appears. (See Fig. 2)
- Select the language you want with **Δ** or **∇**, press OK, and then press **←**.
- Now, choose one of the following methods:  
 "Preset Channels Automatically"  
 or  
 "Preset Channels Manually".



Fig. 2.

To go back to main menu  
Keep pressing **←**

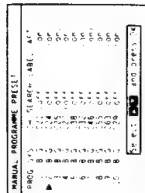
To go back to the normal TV picture  
Press **MENU**.

Note on the Demo Function  
If you choose Demo on the main menu, you can see a demonstration of the menu functions.

Once you have set up the TV, you can choose the language of the menu. Then you should preset the channels (up to 100 channels) by choosing either the automatic or manual method. The automatic method is easier if you want to preset all receivable channels at once. Use the manual method if you only have a few channels and want to preset channels one by one. The manual method is also convenient for allocating programme numbers to various video input sources.



Auto Menu



Manual Menu

**Before you begin**  
Check that the Full-Function side of the Remote Commander is visible.  
Locate Menu operation buttons on the Remote Commander. They are shaded in the illustration at the left.

With this method, you can preset all receivable channels at once.

To stop automatic channel presetting  
Press **←** on the Remote Commander.

#### Notes

- After presetting the channels automatically, you can check which channels are stored on which programme positions. For details, see "Using the Programme Table" on page 45.
- You can exchange the programme positions to have them appear on screen in the order you like. For details, see "Exchanging the Programme Positions" on page 39.

Use this method if there are only a few channels in your area to preset or if you want to preset channels one by one. You may also allocate programme numbers to video input sources.

#### If you have made a mistake

Press **←** to go back to the previous position.  
To go back to main menu  
Keep pressing **←**.  
To go back to the normal TV picture  
Press **MENU**.

### 3 Preset channels automatically

- Select Preset with **+** or **-** and press OK.  
The PRESET menu appears. (See Fig. 3)
  - Select Auto Programme with **+** or **-** and press OK.  
The AUTO PROGRAMME menu appears. (See Fig. 4)
  - Press OK.
  - Select if necessary the TV broadcast system with **+** or **-** and press OK. (B/G for western European countries, D/K for eastern European countries) The first element of the "PROG" number will be highlighted.
  - Select the programme (number button) from which you want to start presetting. Select the first element of the double-digit number with **+** or **-** or the number buttons (e.g. For "04", select "0" here) and press OK.
  - The second element of "PROG" will be highlighted.  
**+** or **-** or the number buttons (e.g. For "04", select "4" here) (See Fig. 5) and press OK.
  - Select "C" or "S" with **+** or **-** and press OK.
- The automatic channel presetting starts.  
When presetting is finished the preset menu reappears.  
All available channels are now stored on successive number buttons.

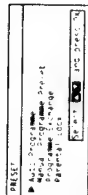


Fig. 3.



Fig. 4.



Fig. 5.

### 3 Preset channels manually

- Select Preset with **+** or **-** and press OK.  
The PRESET menu appears. (See Fig. 6)
- Select Manual Programme Preset with **+** or **-** and press OK.  
The MANUAL PROGRAMME PRESET menu appears. (See Fig. 7)

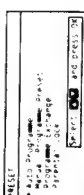


Fig. 6.

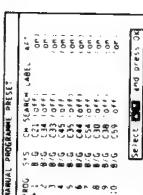


Fig. 7.



## 1-3. ADDITIONAL PRESETTING FUNCTIONS



- 3 Using  $\rightarrow$  or  $\leftarrow$ , select the programme position (number button) to which you want to preset a channel, and press OK.
- 4 Select if necessary the TV broadcast system (B/G for western European countries; D/K for eastern European countries) or a video input source (EXT) with  $\rightarrow$  or  $\leftarrow$ . Then press OK. The CH position will be highlighted. (See Fig. 8.)
- 5 Using  $\rightarrow$  or  $\leftarrow$ , select C (to preset a regular channel), or F (to tune in by frequency) and press OK. The first element of the "CH" number will be highlighted. If you have selected EXT in step 4, select the video input source with  $\rightarrow$  or  $\leftarrow$ . (See Fig. 9.)

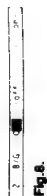


Fig. 8.



Fig. 9.

There are two ways to preset channels. If you know the channel number, go to step "6-Manual".

or

if you don't know the channel number, go to step "6-Search".

### 6 Manual

- a Select the first element of the "CH" number with  $\rightarrow$  or  $\leftarrow$  or the number buttons and press OK. The second element of the "CH" number will be highlighted.
- b Select the second element of the number with  $\rightarrow$  or  $\leftarrow$  or the number buttons. The selected number appears. (See Fig. 10.)
- c Press OK. The "SEARCH" position is highlighted and the selected channel is now stored. (See Fig. 11.)
- d Press OK until the cursor appears by the next programme position. Repeat steps 3 to 6 to preset other channels.



Fig. 10.



Fig. 11.



Fig. 12.



Fig. 13.

**If you have made a mistake**  
Press  $\leftarrow$  to go back to the previous position.  
To go back to main menu keep pressing  $\leftarrow$ .  
To go back to the normal TV picture Press MENU.

- c Press OK if you want to store this channel. If not, press  $\rightarrow$  or  $\leftarrow$  to continue channel searching.
- d Press OK until the cursor appears by the next programme position. Repeat steps 3 to 6 to preset other channels.

This section shows you additional presetting functions such as exchanging or skipping programme positions, captioning a station name, manual fine-tuning, and using the parental lock.

### Before you begin

- Check that the Full Function side of the Remote Commander is visible
- Locate the Menu operation buttons.

## Exchanging Programme Positions

With this function, you can exchange the programme positions to a preferable order.

- 1 Press MENU to display the main menu.
- 2 Select Preset with  $\rightarrow$  or  $\leftarrow$  and press OK. The PRESET menu appears.
- 3 Select Programme Exchange with  $\rightarrow$  or  $\leftarrow$  and press OK. The PROGRAMME EXCHANGE menu appears. (See Fig. 14.)
- 4 Using  $\rightarrow$  or  $\leftarrow$ , select the programme position you want to exchange with another and press OK. The colour of the selected position changes. (See Fig. 15.)
- 5 Using  $\rightarrow$  or  $\leftarrow$ , select the programme position to be exchanged and press OK. Now the two programme positions have been exchanged. (See Fig. 16.)
- 6 Repeat steps 4 and 5 to exchange other programme positions.

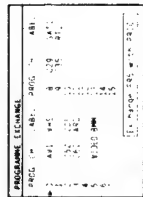


Fig. 14.



Fig. 15.

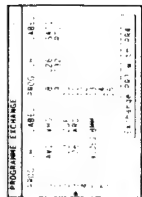


Fig. 16.

## Tuning in a Channel Temporarily

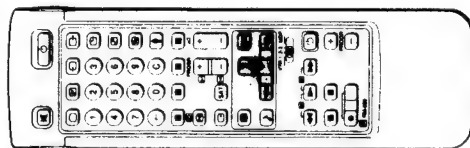
You can tune in a channel temporarily, even when it has not been preset. Use the buttons on the Full-Function side of the Remote Commander.

- 1 Press C on the Remote Commander. The indication "C" appears on the screen.
- 2 Enter the double-digit channel number using the number buttons (e.g. for channel 4, first press 0, then 4). The channel appears. However, the channel will not be stored.



**If you have made a mistake**  
To press  $\leftarrow$  to go back to the previous position.  
To go back to main menu keep pressing  $\leftarrow$ .  
To go back to the normal TV picture Press MENU.

**For programme exchange and 15**  
The display scrolls automatically.





## MANUAL PROGRAMME PRESET

### Skiping Programme Positions

You can skip unused programme positions when selecting programmes with the **PROGR +/-** buttons. However, the skipped programmes may still be called up when you use the number buttons.

- 1 Press **MENU** to display the main menu.
- 2 Select **Preset** with **+ or -** and press **OK**. The **PRESET** menu appears.
- 3 Select **Manual Programme Preset** with **+ or -** and press **OK**. The **MANUAL PROGRAMME PRESET** menu appears. (See Fig. 18.)
- 4 Using **+ or -**, select the programme position which you want to skip and press **OK**. The "SYSTEM" position changes colour.
- 5 Press **+ or -** until **---** appears in the **SYSTEM** position. (See Fig. 18.)
- 6 Press **OK**. (See Fig. 19) When you select programmes using the **PROGR +/-** buttons, the programme position will be skipped.
- 7 Repeat steps 4 to 6 to skip other programme positions.



Fig. 17.



Fig. 18.



Fig. 19.

## MANUAL PROGRAMME PRESET

### Captioning a Station Name

You can "name" a channel or an input video source using up to five characters (letters or numbers) to be displayed on the TV screen (e.g. ZDF). Using this function, you can easily identify which channel or video source you are watching.

- 1 Press **MENU** to display the main menu.
- 2 Select **Preset** with **+ or -** and press **OK**. The **PRESET** menu appears.
- 3 Select **Manual Programme Preset** with **+ or -** and press **OK**. The **MANUAL PROGRAMME PRESET** menu appears. (See Fig. 20.)
- 4 Using **+ or -**, select the programme position you want to caption and press **OK** repeatedly until the first element of the **LABEL** position is highlighted.
- 5 Select a letter or number with **+ or -** and press **OK**. The next element will be highlighted. Select other characters in the same way. If you want to leave an element blank, select **-** and press **OK**. (See Fig. 21.)
- 6 After selecting all the characters, press **OK** repeatedly until the cursor appears by the next programme position (at the left margin). Now the caption you chose is stored. (See Fig. 22.)
- 7 Repeat steps 5 and 6 to caption names for other channels.

**If you have made a mistake**  
Press **←** to go back to the previous position.  
To go back to main menu  
Keep pressing **←**.

To go back to the normal TV picture  
Press **MENU**.



Fig. 20.



Fig. 21.



Fig. 22.

## MANUAL PROGRAMME PRESET

### Manual Fine-Tuning

Normally, the AFT (automatic fine-tuning) is already operating. However, if the picture is distorted, you can use the manual fine-tuning function to obtain better picture reception.

- 1 Press **MENU** to display the main menu.
- 2 Select **Preset** with **+ or -** and press **OK**. The **PRESET** menu appears.
- 3 Select **Manual Programme Preset** with **+ or -** and press **OK**. The **MANUAL PROGRAMME PRESET** menu appears. (See Fig. 23.)
- 4 Using **+ or -**, select the programme position corresponding to the channel which you want to manually fine-tune, and press **OK** repeatedly until the AFT position changes colour.
- 5 Fine-tune the channel with **+ or -** so that you get the best TV reception. As you press the cursor buttons, the frequency changes from -15 to +15. (See Fig. 24.)
- 6 After fine tuning, press **OK**. The cursor appears beside the next programme position (at the left margin). (See Fig. 25.) Now the fine-tuned level is stored.
- 7 Repeat steps 4 to 6 to fine-tune other channels.



Fig. 23.



Fig. 24.



Fig. 25.

**To reactivate AFT**  
(Reactivate fine-tuning)  
Repeat from the beginning and select "OK" in step 5.

## PARENTAL LOCK

### Parental Lock

You can prevent undesirable broadcasts from appearing on the screen. We suggest you use this function to prevent children from watching programmes which you consider unsuitable.

- 1 Press **MENU** to display the main menu.
- 2 Select **Preset** with **+ or -** and press **OK**. The **PRESET** menu appears.
- 3 Select **Parental Lock** with **+ or -** and press **OK**. The **PARENTAL LOCK** menu appears. (See Fig. 26.)
- 4 Using **+ or -**, select the programme position you want to block and press **OK**. The selected **PROG** number, **CH** and **LABEL** change colour indicating that this programme is now blocked. (See Fig. 27.)
- 5 Repeat step 4 to block other programme positions.



Fig. 26.

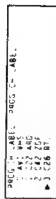


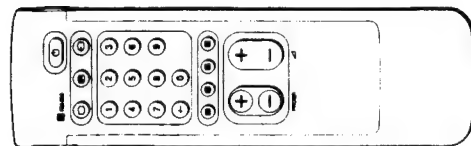
Fig. 27.

### Cancelling blocking

- 1 On the **PARENTAL LOCK** menu, select the programme position you want to unblock with **+ or -**.
- 2 Press **OK**. The selected **PROG** number, **CH** and **LABEL** change colour to normal colour indicating that the blocking has been cancelled.



## 1-4. WATCHING THE TV



If no picture appears when you depress  $\odot$  on the TV and if the standby indicator on the TV is lit, the TV is in standby mode. Press  $\square$  or one of the number buttons to switch it on.

This section explains the basic functions you use while watching TV. Most of the operations can be done using the simple side of the Remote Commander.

### Switching the TV on and off

#### Switching on

Depress  $\odot$  on the TV.

#### Switching off temporarily

Press  $\odot$  on the Remote Commander.

The TV enters standby mode and the standby indicator on the front of the TV lights up.

#### To switch on again

Press  $\square$ , PROG  $\pm/\mp$ , or one of the number buttons on the Remote Commander.

#### Switching off completely

Depress  $\odot$  on the TV.

### Selecting TV Programmes

Press PROG  $\pm/\mp$  or press number buttons.

#### To select a double-digit number

Press  $\pm/\mp$ , then the numbers.

For example, if you want to choose 23, press  $\pm/\mp$ , 2, and 3.

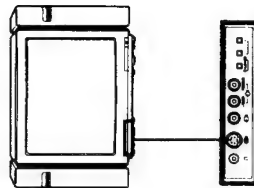
### Adjusting the Volume

Press  $\blacksquare/\blacktriangle$ .

### Operating the TV Using the Buttons on the TV

With the buttons on the TV, you can select programmes, adjust the volume, and select video input sources.

- Press  $\text{P} \rightarrow \text{A} \rightarrow \text{D}$  button repeatedly until the programme number,  $\Delta$  (for volume), or  $\text{V}$  (for video input picture) appears. Then adjust with the  $\pm$  buttons.
- Press  $\rightarrow$  buttons to switch on the TV from the standby mode.
- Press  $\rightarrow$  simultaneously to reset picture and sound controls to the factory preset level (RESET function.)



### Watching Teletext or Video Input

#### Watching teletext

- Press  $\text{P}$  to view the teletext.
- Press three number buttons to select a page.
- Press one of the coloured buttons for fastest operation.
- Press  $\text{P}$  (PAGE  $\rightarrow$ ) or  $\text{P}$  (PAGE  $\leftarrow$ ) for the next or preceding page.
- To go back to the normal TV picture, press  $\square$ .

#### Watching a video input picture

Press  $\text{V}$  repeatedly until the desired video input appears. To go back to the normal TV picture, press  $\square$ .

### More Convenient Functions

Use the Full-Function side of the Remote Commander.

#### Displaying the on screen indications

- Press  $\square$  once to display all the indications. They will disappear after some seconds.
- Press  $\square$  twice to have the programme number and label stay on screen. Press twice again to make indications disappear.

#### Muting the sound.

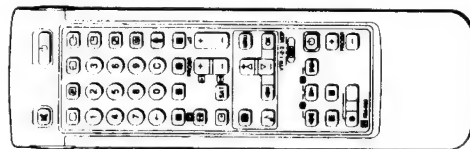
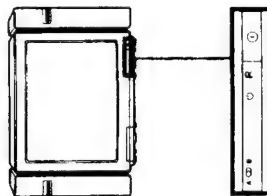
Press  $\text{M}$ .  
To resume normal sound, press  $\text{M}$  again.

#### Displaying the time

Press  $\text{T}$ . This function is available only when teletext is broadcast.  
To make the time display disappear, press  $\text{T}$  again.

For details of the teletext operation, refer to page 47.

For details of the video input picture, refer to page 51.





## 1-5. ADJUSTING AND SETTING THE TV USING THE MENU



### Adjusting the Picture and Sound

Although the picture and sound are adjusted at the factory, you can adjust them to suit your own taste. In addition, you can change the aspect ratio of the TV display for wide screen effect, or set the resolution to obtain a higher quality picture. You can also select dual sound (bilingual) programmes when available or adjust the sound for listening with the headphones.

- 1 Press **⏏** (for picture) or **🔊** (for sound) on the Remote Commander.  
or  
Press MENU and select Picture Control or Sound Control, then press OK.  
The PICTURE CONTROL or SOUND CONTROL menu appears. (See Fig. 28 or Fig. 29)
- 2 Using **+** or **-**, select the item you want to adjust and press OK. The selected item changes colour. (See Fig. 30)
- 3 Adjust the setting with **+** or **-** and press OK.  
The cursor appears beside the next item (at the left margin). (See Fig. 31)  
For the effect of each control, see the table below.
- 4 Repeat steps 2 and 3 to adjust other items.

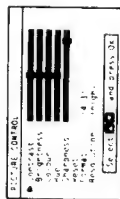


Fig. 28.

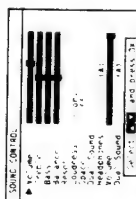


Fig. 29.



Fig. 30.



Fig. 31.

### Effect of each control

PICTURE CONTROL	Effect
Contrast	Less ——— More
Brightness	Darker ——— Brighter
Colour	Less ——— More
Hue	Greenish ——— Reddish
Sharpness	Softer ——— Sharper
Reset	Resets picture to the factory preset levels.
Format	4 : 3 : Normal    16 : 9 : Wide screen effect
Resolution	Normal    High : Obtain a higher quality picture
SOUND CONTROL	Effect
Volume	Less ——— More
Treble	Less ——— More
Bass	Less ——— More
Balance	More left ——— More right
Loudness	Resets sound to the factory preset levels.
Space	off : Normal    on : When listening to low volume sound.
Dual Sound	off : Normal    on : Obtain acoustic sound effect.
Headphones:	A : left channel    B : right channel    stereo mono
Volume	The selected mode of the A-CD-B indicator on the TV lights up.
Dual Sound	Less ——— More
	A : left channel    B : right channel    stereo mono

**If you have made a mistake**  
Press **⏏** to go back to the previous position.  
To go back to the main menu, keep pressing **⏏**.  
To go back to the normal TV picture, press MENU.

**Note**  
HUE is only available for NTSC colour system and RESOLUTION does not work for SECAM colour system.

**Note on LINE OUT**  
The audio level and the dual sound mode output from the G-jack on the rear correspond to the HEADPHONES VOLUME and DUAL SOUND settings.

**When switching video input picture**  
You can select DUAL SOUND to change the sound.

### PROGRAMME TABLE

To select a programme using this programme number with **+** or **-** and press OK. The selected programme appears.

To go back to the normal TV picture Press MENU.

### Using the Programme Table

On this table, you can see which channel is preset to which programme position. You can also select programmes using this table.

From the main menu, select Programme Table with **+** or **-** and press OK.

The PROGRAMME TABLE menu appears. (See Fig. 32)

To scroll to higher programme numbers, press **-**.

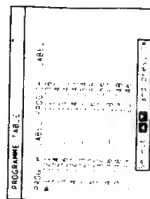


Fig. 32.

### Using the Sleep Timer

You can select a time period after which the TV automatically switches into standby mode.

1 From the main menu, select Timer with **+** or **-** and press OK.

The Timer menu appears. (See Fig. 33)

2 Press OK.

The time period option changes colour.

3 Select the time period with **+** or **-**.

The time period (in minutes) changes as follows:

10 → 20 → 30 → 40 → 50 → 60 → 70 → 80 → 90  
1 ——— OFF

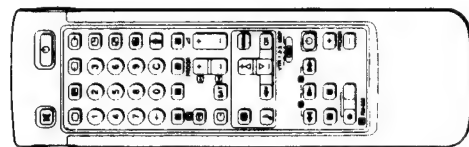


Fig. 33.

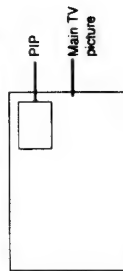
4 After selecting the time period, press OK.  
The cursor moves back to the left margin and the timer starts counting.  
One minute before the TV switches into standby mode, a message is displayed on the screen.



## 1-6. PIP (PICTURE IN PICTURE)



With this function you can display a "PIP screen" (small picture) within the main TV picture. In this way you can watch or monitor the video output from any connected equipment, (for example from a VCR) while watching TV or vice versa. For information about connection of other equipment, refer to page 50.



### Switching PIP on and off

Press **⏏**. The PIP screen will be displayed. The PIP picture will come from the source chosen when the TV was last used.

To switch PIP off Press **⏏** again.

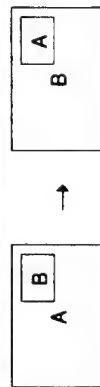
### Selecting a PIP source

Press **1**. The symbol **1** will be displayed at the bottom, left-hand corner of the screen. Press **←** repeatedly until the desired PIP source is indicated (e.g. TV, AV1, AV2, YC2, YC3, AV4, YC4).

**Note** If no video source has been connected, the PIP picture will be noisy.

### Swapping screens

Press **↔**. The main screen will switch the picture with the PIP screen.

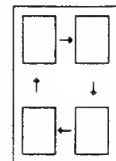


**Note**

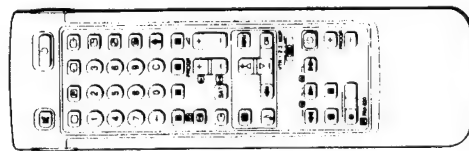
If a TV programme is on the PIP screen and a video source on the main picture, and you want to change channels, first press **1** and then the programme buttons or **PROG +/-**.

### Changing the position of the PIP

Press **⏏** repeatedly to change the position of the PIP screen within the main screen. There are four different positions available.



## 1-7. TELETEXT



TV stations broadcast an information service called Teletext via the TV channels. Teletext service allows you to receive various information pages such as weather reports or news at any time you want. For advanced teletext operation, use the buttons on the Full-Function side of the Remote Commander.

### Direct Access Functions

#### Switching Teletext on and off

1 Select the TV channel which carries the teletext broadcast you want to watch.

2 Press **⏏** to switch on teletext. A teletext page will be displayed (usually the index page) if there is no teletext broadcast. P100 is displayed on the information line at the top of the screen.

To switch teletext off Press **⏏**.

#### Selecting a teletext page

##### With direct page selection

Use the number buttons to input the three digits of the chosen page number. If you have made a mistake, type in any three digits. Then re-enter the correct page number.

##### With page-catching

1 Select a teletext page with a page overview (e.g. index page). Press **⏏** twice. "Page catching" will be displayed on the information line. The last digit of the first displayed page number flashes.

2 Using **+** or **-**, select the desired page and press **OK**. The requested page will appear in a few seconds.

#### Accessing next or preceding page

Press **⏏** (PAGE +) or **⏏** (PAGE -). The next or preceding page appears.

#### Superimposing the teletext display on the TV programme

- Press **⏏** once in teletext mode or twice in TV mode.
- Press **⏏** again to resume normal teletext reception.

#### Preventing a teletext page from being updated

- Press **⏏** (HOLD). The HOLD symbol "⏏" displayed on the information line.
- Press **⏏** to resume normal teletext reception.

#### Using Fastext

With Fastext you can access pages with one key stroke. When a Fastext page is broadcast, a colour-coded menu will appear at the bottom of the screen. The colours of this menu correspond to the red, green, yellow and blue buttons on the Remote Commander.

Press the corresponding coloured button on the Remote Commander which corresponds to the colour-coded menu. The page will be displayed after some seconds.

**Note** Teletext errors may occur if the broadcasting signals are weak.

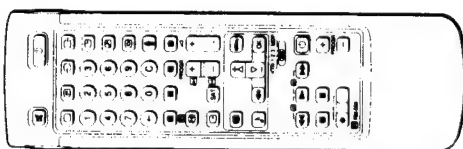
With the simple side of the Remote Commander

You can switch teletext on and off, operate Fastext and directly select page numbers.

**Note** Fastext operation is only possible, if the TV station broadcasts Fastext signals.



## Using the Teletext Menu



**Note**  
Some of the features may not be available depending on the Teletext service.

This TV is provided with a menu-guided teletext system. When teletext is switched on, you can use the menu buttons to operate the teletext menu. Select the teletext menu functions in the following way:

- 1 Press MENU. The menu will be superimposed on the teletext display. (See Fig. 34)
- 2 Using + or -, select the teletext function you want and press OK. (See Fig. 35)

### USER PAGES/PRESET USER PAGES

See page 49 for information about presetting and operating the user pages.

### INDEX

The index will give you an overview of the contents of the teletext and the page numbers.

### TOP/BOTTOM/FULL

For convenient reading of a teletext page, you can enlarge the teletext display. After having selected the function, an information line Top/Bottom/Full will be displayed. (See Fig. 36)

Press + for Top to enlarge the upper half, - for Bottom to enlarge the lower one and OK for Full to resume the normal size.

Press ⊞ to resume normal teletext reception.

### TEXT CLEAR

After having selected the function, you can watch a TV programme while waiting for a teletext page to be displayed. (See Fig. 37)

Press ⊞ to resume normal teletext reception.

### SUBTITLES

Your teletext service will inform you if a TV programme is subtitled. After having selected the function the subtitles will be displayed.

### REVEAL

Sometimes pages contain concealed information, such as answers to a quiz. The reveal option lets you disclose the information. After having selected the function, an information line "REVEAL ON/OFF" will be displayed. (See Fig. 38)

Using + or -, select ON to reveal the information or OFF to conceal it again.

Press ⊞ to resume normal teletext reception.

### TIME PAGE

Your teletext service will inform you, if a time coded page is available. You may have a page (e.g. an alarm page) displayed at a certain time.

- 1 Press OK to select ON for the Time Page setting. The TV programme you were watching before you selected Time Page is restored. An information window will be displayed at

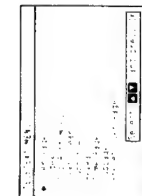


Fig. 34.

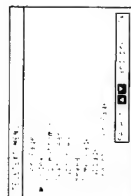


Fig. 35.



Fig. 36.



Fig. 37.

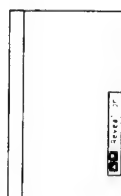


Fig. 38.

To cancel the request  
Select "OFF" for the  
SUBPAGE setting and  
press OK.

If two broadcasting  
stations use the same  
Teletext  
You can preset one  
bank to 2 different  
programme positions.

- 3 To select the desired time, enter four digits for the desired time (e.g. 1800) using the number buttons and press OK. The selected time is displayed at the top in the left-hand corner. At the requested time, the page will be displayed.  
Press ⊞ to resume normal teletext mode.

### SUBPAGE

You may want to select a particular teletext page from several subpages which are rotated automatically. If you want to select one subpage, follow the operations below:

- 1 Using + or -, select ON for the SUBPAGE setting and press OK.
- 2 To select the desired subpage, enter four digits using PROG +/- or the number buttons. (e.g. enter 0002 for the second page of a sequence).

## User Page Bank System

You can store up to 30 pages in the "Teletext page bank system". In this way you have quick access to the pages you watch frequently.

### Storing pages

There are 5 "banks" (A to E) for 5 teletext stations. In each bank you can store 6 preferred pages (P1 to P6).

- 1 Press ⊞ (if Teletext is not on already) and MENU to show the TELETXT MENU display.

- 2 Select Preset User Pages with + or - and press OK.

- 3 Select the desired bank with + or - and press OK. The cursor will go to the first position (P1) of the preferred pages.

- 4 Input the three digits of your first preferred page with the number buttons and press OK.  
The cursor will go to the second position.

- 5 Repeat step 4 for the other 5 page numbers you want to preset. If you do not want to preset all 5 page numbers available, press OK without inserting any number. After having finished the presetting press OK repeatedly until the cursor appears besides the next bank at the left margin.

- 6 Select Allocate Bank with + or - and press OK.

- 7 Select the programme position for which you want to preset pages with + or - and press OK. (See Fig. 39)

- 8 Select the desired bank with + or - (Banks A to E are available) and press OK.

- 9 Repeat steps 3 to 8 for the other 4 banks available.

### Displaying User Pages

- 1 Select MENU.
- 2 Select User Pages with + or - and press OK.  
A table of the stored preferred pages will be displayed. (See Fig. 40)
- 3 Select the desired page with + or - and press OK. The page will be displayed after some seconds.



Fig. 39.



Fig. 40.

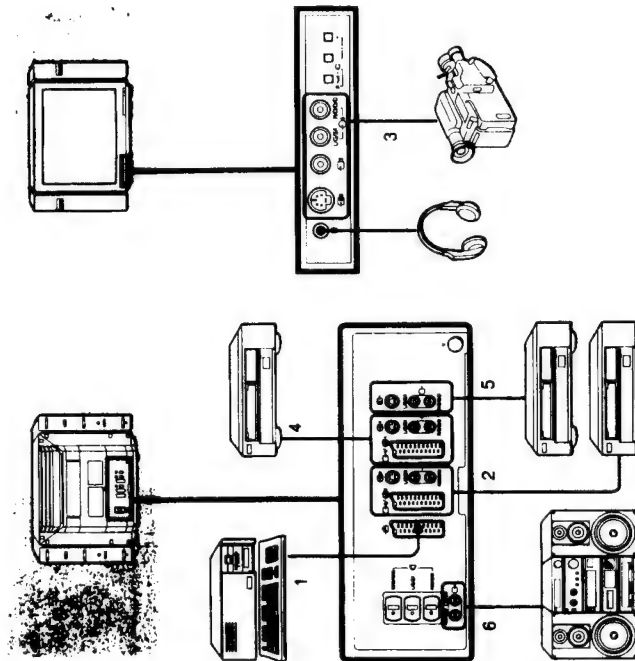
To cancel the  
request  
Press OK to select  
"OFF" for the TIME  
PAGE setting.



# 1-8. CONNECTING AND OPERATING OPTIONAL EQUIPMENT

## Connecting Optional Equipment

You can connect optional audio-video equipment to this TV such as VTRs, video disc players, and stereo systems.



**To connect a VTR**  
 Connect the VTR to the TV.  
 Connect the serial output of the VTR to the aerial terminal of the TV.  
 We recommend that you tune in the video signal to programme number 1 or 2 or 3, and select "preset channels manually" on page 37.

**If the picture or the sound is distorted**  
 Move the VTR away from the TV.

**S-video input (Y/C input)**  
 Video signals may be separated into Y (luminance) and C (chrominance) signals. Separating the Y and C signals prevents them from interfering with one another, and therefore improves picture quality (especially luminance).  
 3 S-Video is equipped with 3 S-Video inputs through which these separated signals can be input directly.

**When connecting a manual VTR**  
 Connect only the white -C- jack to both the TV and VTR.

Acceptable input signal	Available output signal
1 Normal audio/video and RGB signal	Video/audio from TV tuner
2 Normal audio/video and S video signal	Video/audio from selected source
3 Normal audio/video and S video signal	No outputs
4 Normal audio/video and S video signal	Video/audio displayed on TV screen (monitor out)
5 No inputs	S video/audio signal displayed on TV screen (monitor out)
6 No inputs	Audio signal (variable)

## Selecting input and output

This section explains how to view the video input picture (of the video source connected to your TV), and how to select the output signal using direct access buttons or the menu system.

### Selecting input

Press **Input** repeatedly to select the input source.  
 The symbol of the selected input source will appear.  
 To go back to the normal TV picture  
 Press **Input**.

### Input modes

Symbol	Input signal
1	Audio/video input through the -C- 1 connector
2	RGB input through the -C- 1 connector
3	Audio/video input through the -C- 2/-C- 2 connector
4	S video input through the -C- 2/-C- 2 or -C- 2 connector
5	Audio/video input through -C- 3 and -C- 3 on the front
6	S video input through the -C- 3 connectors on the front (4-pin connector)
7	Audio/video input through the -C- 4/-C- 4 connector
8	S video input through the -C- 4/-C- 4 or -C- 4 connector (4-pin connector)

You can also select the input mode using the **Input** and **Input** buttons on the TV. In this case, first select **Input**, and then press **Input** buttons to select the input.

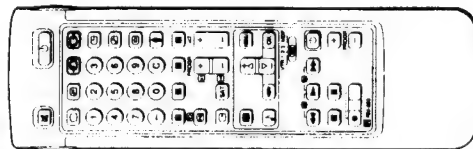
### Selecting the output

The -C- 2/-C- 2 connector outputs the source input from the other connectors.  
 Press **Output** repeatedly to select the output.  
 The symbol of the selected output source appears.

### Output modes

Symbol	Output mode
1	The audio/video signal from the -C- 1 connector
2	The audio/video signal from the -C- 2/-C- 2 connector
3	The audio/S video signal from the -C- 2/-C- 2 connectors
4	The audio/S video signal from the -C- 3, -C- 3 connectors
5	The audio/S video signal from the -C- 3, -C- 3 connectors
6	The audio/video signal from the -C- 4/-C- 4 connector
7	The audio/S video signal from the -C- 4/-C- 4 connector
8	The audio/video signal from the -C- 4/-C- 4 connector
TV	The audio/video signal from the -C- 4/-C- 4 aerial terminal

**Selecting input with PROGR +/- or number buttons**  
 You can press to the input sources to the programme positions. Press **PROGR +/-** or number buttons.  
 For details, see "Preset channels manually" on page 37.





## 1-9. FOR YOUR INFORMATION

### Troubleshooting

Here are some simple solutions to problems which may affect the picture and sound.

Problem	Solution
No picture (screen is dark), no sound	<ul style="list-style-type: none"> <li>• Plug the TV in.</li> <li>• Press <math>\odot</math> on the TV. (If <math>\odot</math> indicator is on, press <math>\square</math> or a programme number on the Remote Commander.)</li> <li>• Check the aerial connection.</li> <li>• Check if the selected video source is on.</li> <li>• Turn the TV off for 3 or 4 seconds and then turn it on again using <math>\odot</math>.</li> </ul>
Poor or no picture (screen is dark), but good sound	<ul style="list-style-type: none"> <li>• Press <math>\blacksquare</math> to enter the PICTURE CONTROL menu and adjust BRIGHTNESS, CONTRAST and COLOUR.</li> </ul>
Good picture but no sound	<ul style="list-style-type: none"> <li>• Press <math>\triangleleft</math> +.</li> <li>• Check loudspeakers connection.</li> <li>• If <math>\alpha</math> is displayed on the screen, press <math>\alpha</math>.</li> </ul>
No colour for colour programmes	<ul style="list-style-type: none"> <li>• Press <math>\blacksquare</math> to enter the PICTURE CONTROL menu, select RESET, then press OK.</li> </ul>
Remote Commander does not function.	<ul style="list-style-type: none"> <li>• Replace batteries.</li> </ul>

If you continue to have problems, have your TV serviced by qualified personnel. Never open the casing yourself.



Fig. 41.



Fig. 42.



Fig. 43.

#### Checking and selecting the input and output sources using the menu

You can display the menu to see which input sources are selected for the TV screen and PIP screen, and which output source is selected. You can also select them on the menu display.

1 Select Video Connection with  $\rightarrow$  or  $\leftarrow$  and press OK. The VIDEO CONNECTION menu appears. (See Fig. 41)

2 You can see which source is selected for the TV and PIP input, and for the output. If you want to select the input and output on this menu, go on to the next step.

3 Select TV Screen (input source for the TV screen), PIP (input source for the PIP screen), or output (output source) with  $\rightarrow$  or  $\leftarrow$  and press OK. One of the source items changes colour. (See Fig. 42)

4 Select the desired source with  $\rightarrow$  or  $\leftarrow$ . (See Fig. 43) For details about each source, see the table on page 23.

5 Press OK. The selected source is confirmed, and the cursor appears. (See Fig. 44)

Repeat steps 2 to 4 to select the source for other inputs or outputs.

#### Remote Control of Other Sony Equipment

You can use the TV Remote Commander to control most of Sony remote-controlled video equipment such as: Beta, 8mm or VHS VTRs or video disc players.

Tuning the Remote Commander to the equipment

1 Set the VTR 1/2/3 MDP selector according to the equipment you want to control:

VTR 1: Beta or ED Beta VTR

VTR 2: 8mm VTR

VTR 3: VHS VTR

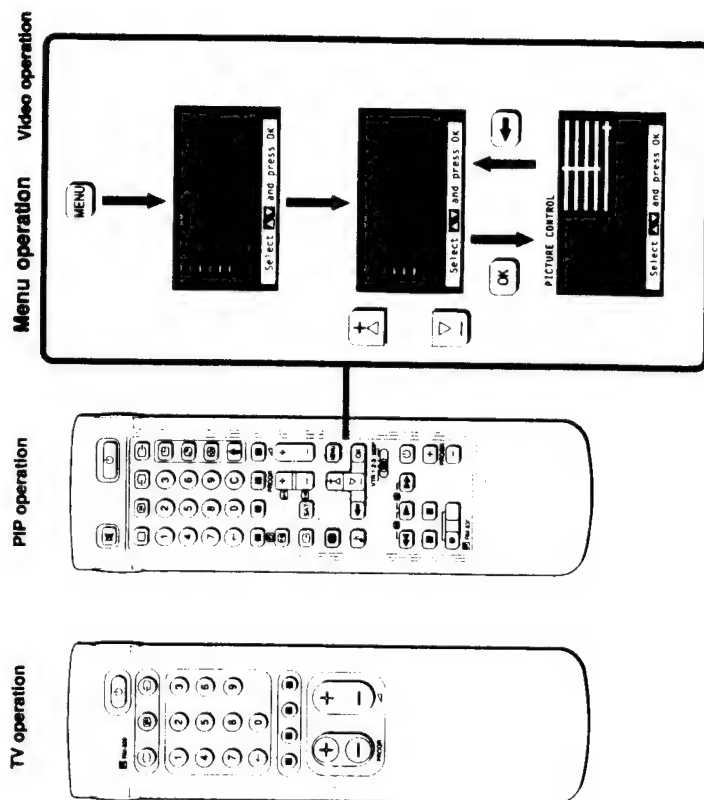
MDP: Video disc player

2 Use the buttons indicated in the illustration to operate the additional equipment.

If your video equipment is furnished with a COMMAND MODE selector: set this selector to the same position as the VTR 1/2/3 MDP selector on the TV Remote Commander.

If the equipment does not have a certain function, the corresponding button on the Remote Commander will not operate.

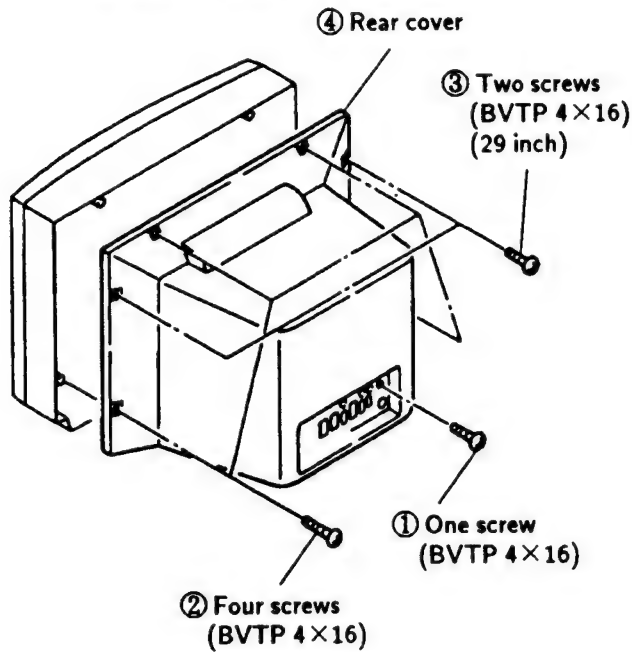
**When recording**  
When you use the  $\bullet$  (record) button, make sure to press the button and the one to the right of it simultaneously.



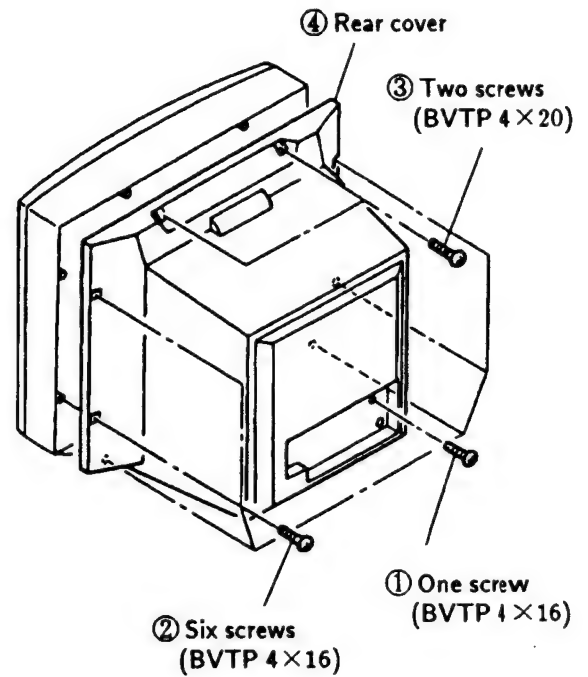


## SECTION 2 DISASSEMBLY

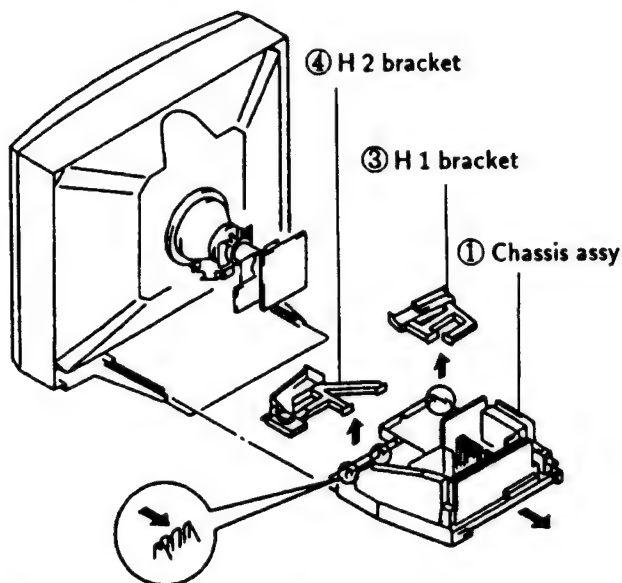
### 2-1-1. REAR COVER REMOVAL (25 inch, 29 inch)



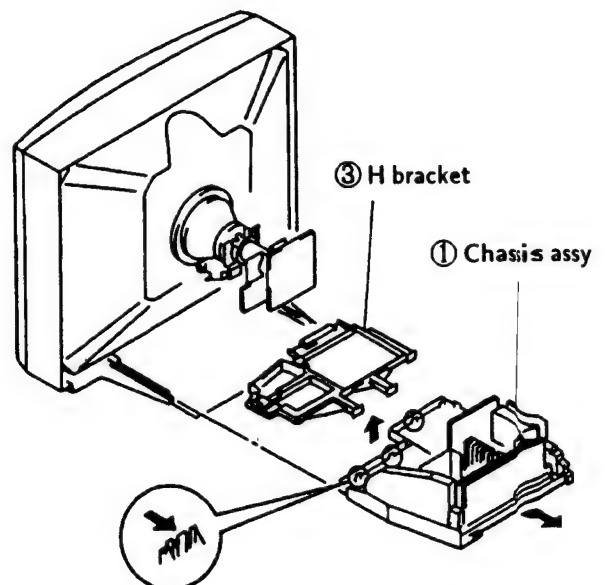
### 2-1-2. REAR COVER REMOVAL (34 inch)



### 2-2-1. CHASSIS ASSY REMOVAL (25 inch, 29 inch)



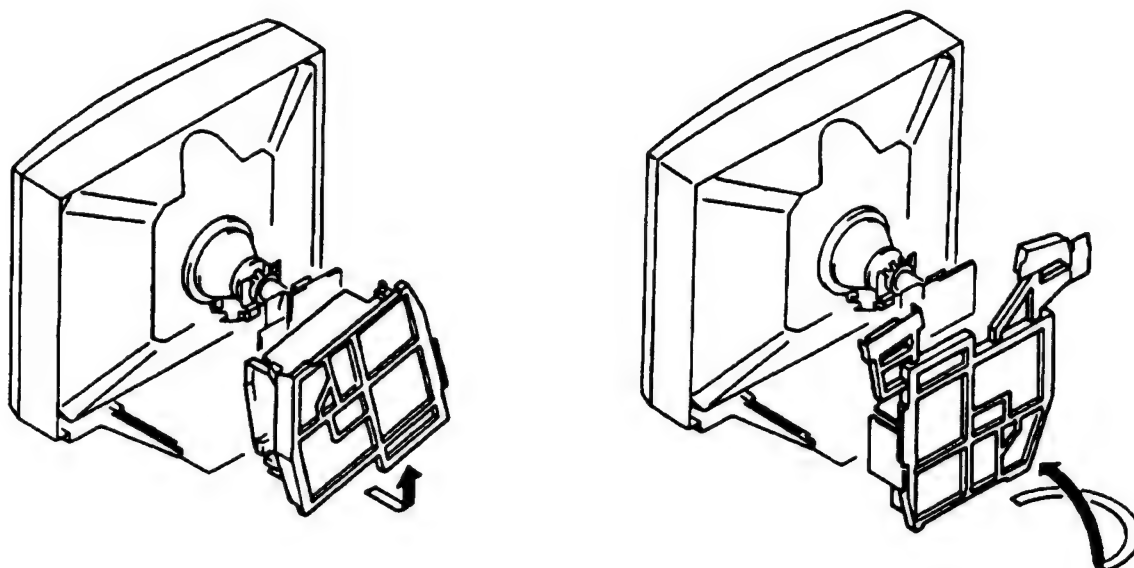
### 2-2-2. CHASSIS ASSY REMOVAL (34 inch)



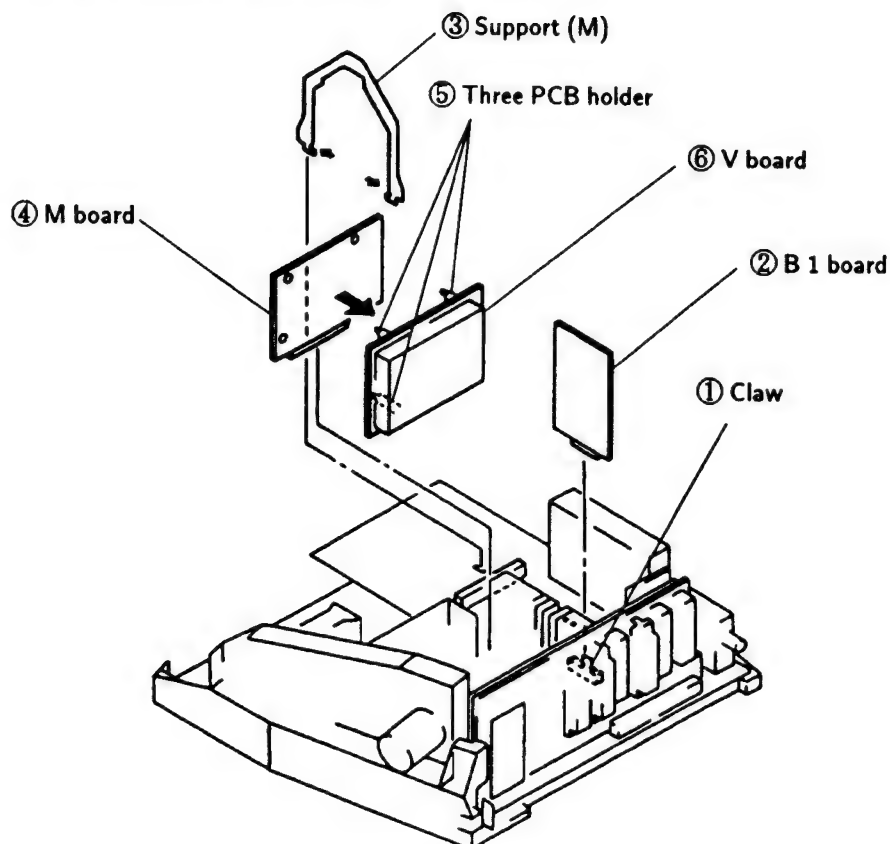


## 2-3. SERVICE POSITION

- ※ Remove the H bracket from the main chassis assy and then perform the following servicing.  
(Refer to 2-2. CHASSIS ASSY REMOVAL)

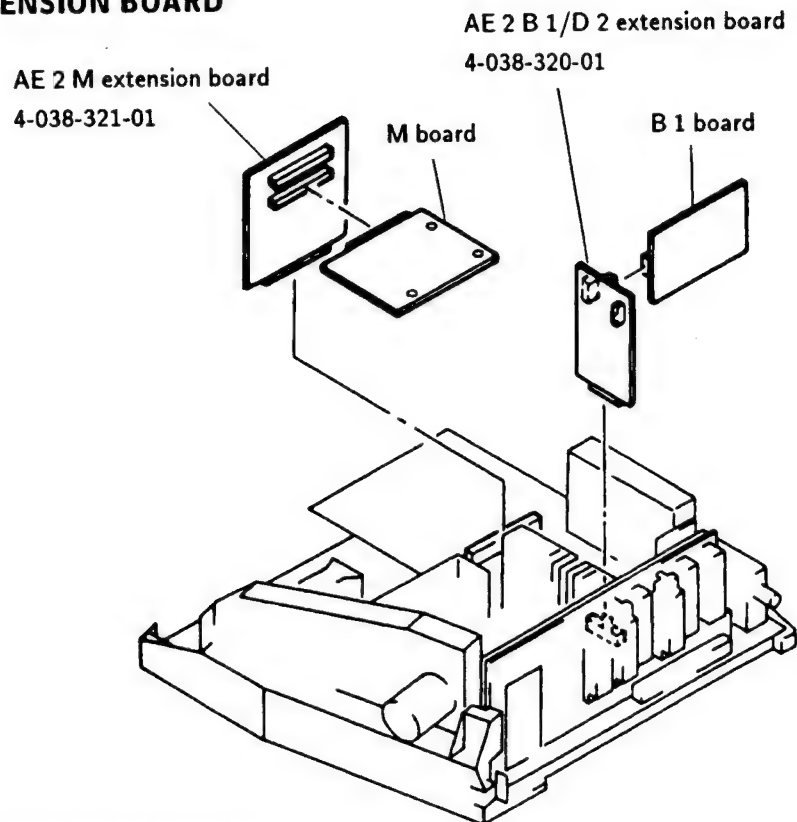


## 2-4. B 1, M AND V BOARDS REMOVAL

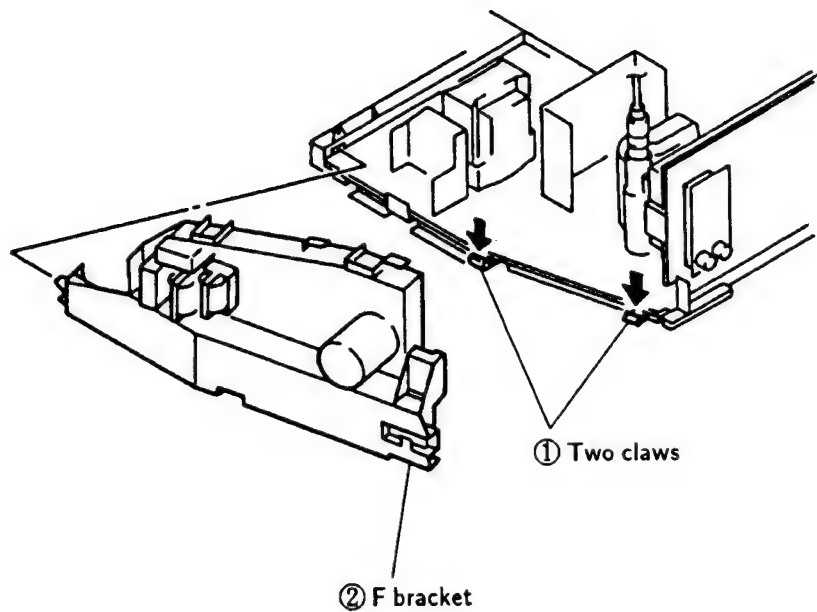




## 2-5. EXTENSION BOARD

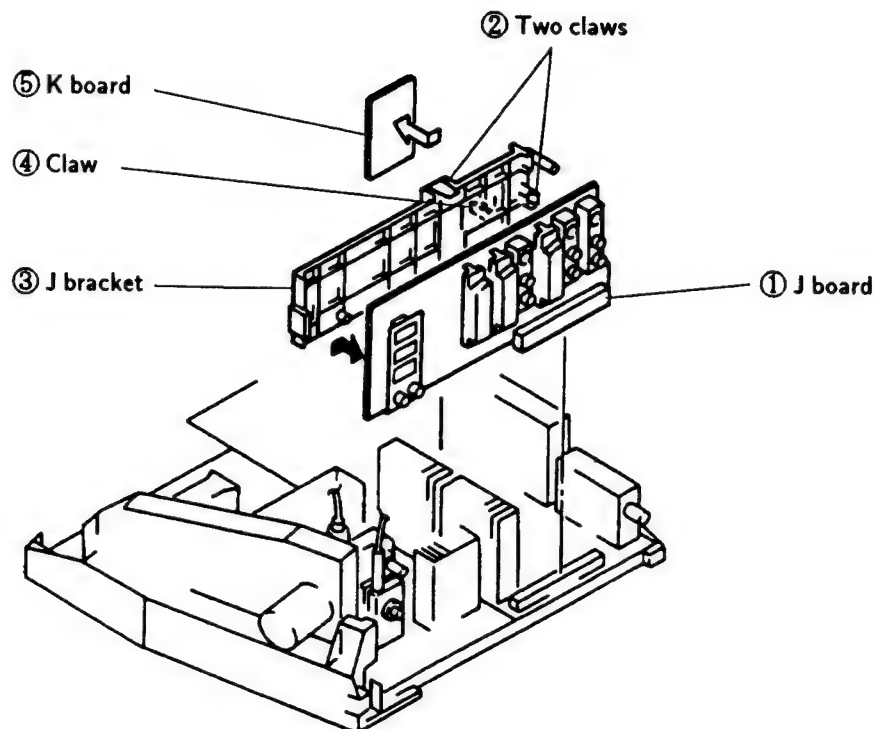


## 2-6. F BRACKET REMOVAL

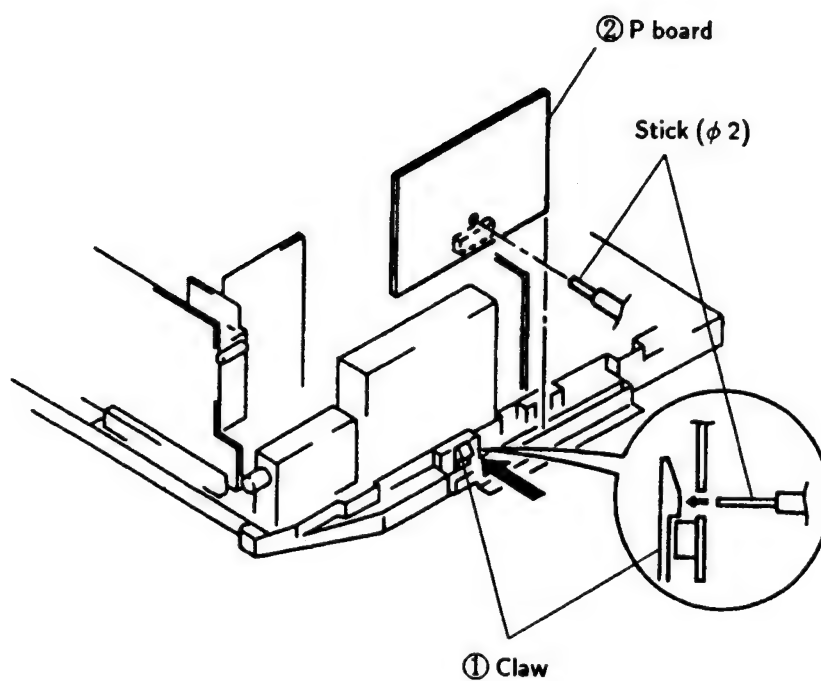




## 2-7. J AND K BOARDS REMOVAL



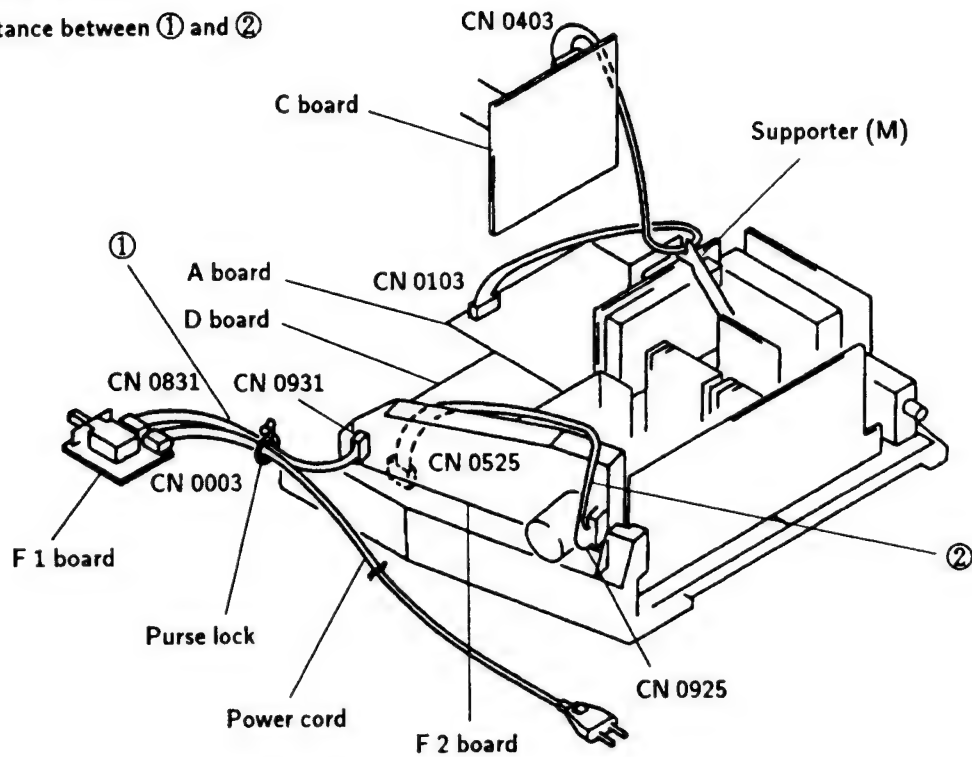
## 2-8. P BOARD REMOVAL



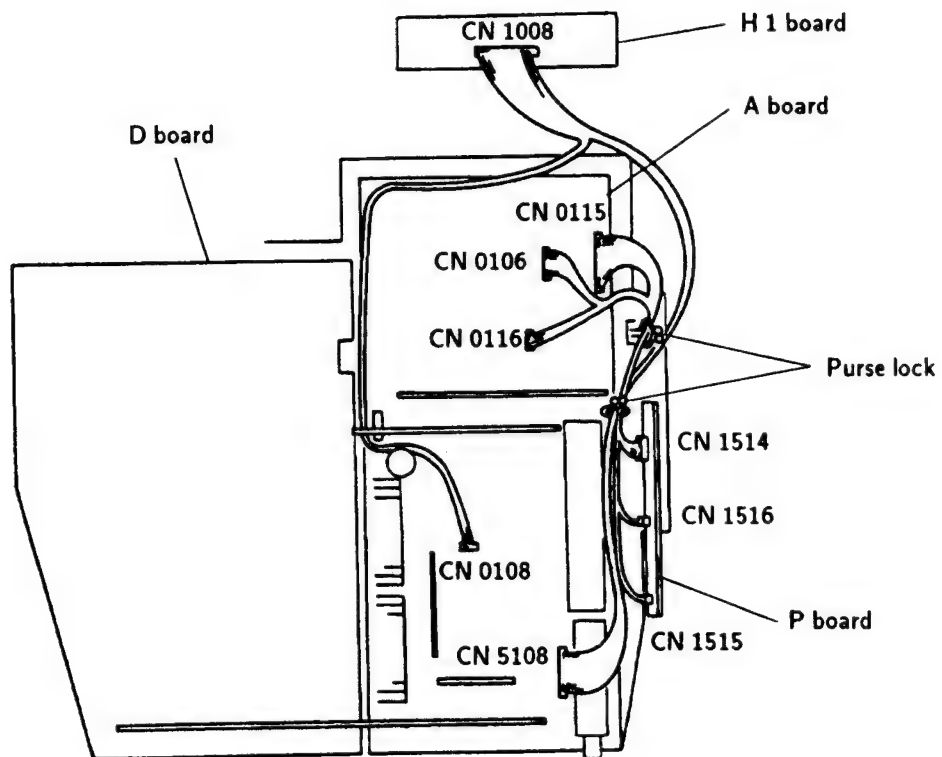


## 2-9-1. WIRE ROD

※ Keep distance between ① and ②

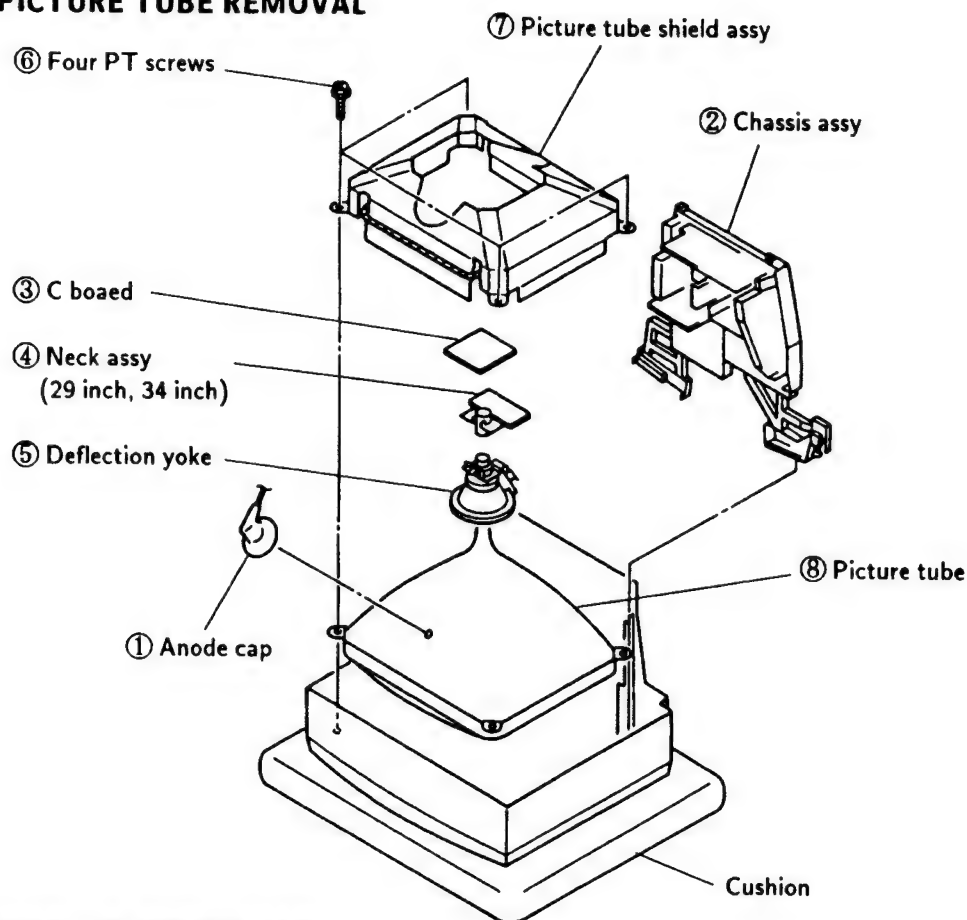


## 2-9-2. WIRE ROD





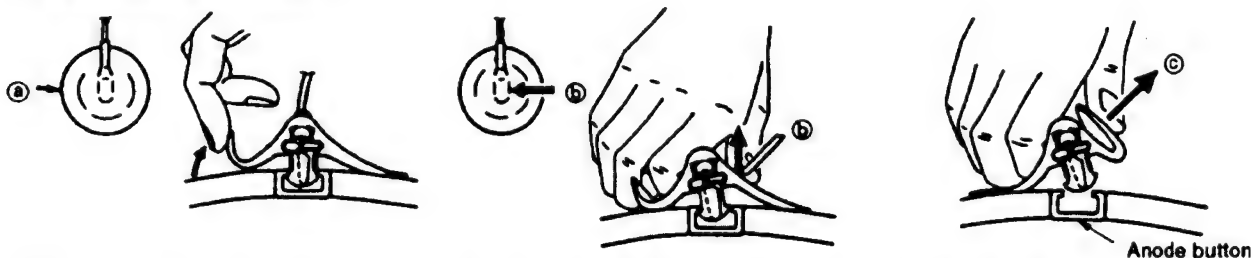
## 2-10. PICTURE TUBE REMOVAL



### • REMOVAL OF ANODE-CAP

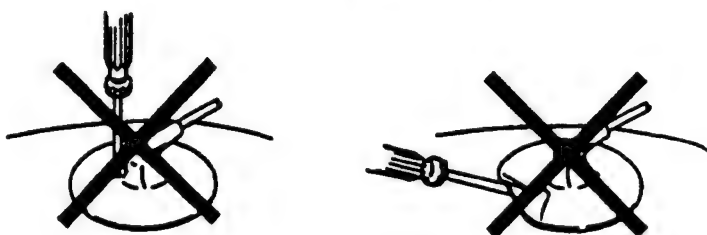
NOTE : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon painted on the CRT, after removing the anode.

### • REMOVING PROCEDURES



### • HOW TO HANDLE AN ANODE-CAP

- ① Don't hurt the surface of anode-caps with sharp shaped material!
- ② Don't press the rubber hardy not to hurt inside of anode-caps!  
A material fitting called as shatter-hook terminal is built in the rubber.
- ③ Don't turn the foot of rubber over hardy!  
The shatter-hook terminal will stick out or hurt the rubber.





## SECTION 3

### SET-UP ADJUSTMENTS

- When complete readjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there is specific instruction to the contrary, carry out these adjustments with the rated power supply.
- Unless there is specific instruction to the contrary, set the controls and switches this way :

● Contrast ..... 80% (or remote control normal)

⚙ Brightness ..... 50%

- Carry out the following adjustments in this order :

1. Beam landing
2. Convergence
3. Focus
4. White balance

**Note:** Testing equipment required.

1. Color bar/pattern generator
2. Degausser
3. DC power supply
4. Digital multimeter
5. Oscilloscope

#### Preparations :

- In order to reduce the influence of geomagnetism on the set's picture tube face it east or west.
- Switch on the set's power and degauss with the degausser.

#### 3-1. BEAM LANDING

1. Input the white signal with the pattern generator.  
Contrast } normal  
Brightness }
2. Position neck assy as shown in Fig.3-2.
3. Set the pattern generator raster signal to red.
4. Move the deflection yoke to the rear and adjust with the purity control so that the red is at the center and the blue and the green take up equally sized areas on each side. (See Fig.3-1 - 3-3)
5. Move the deflection yoke forward and adjust so that entire screen is red. (See Fig.3-1)
6. Switch the raster signal to blue, then to green and verify the condition.
7. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws.
8. If the beam does not land correctly in all the corners, use a magnet to adjust it. (See Fig.3-4)

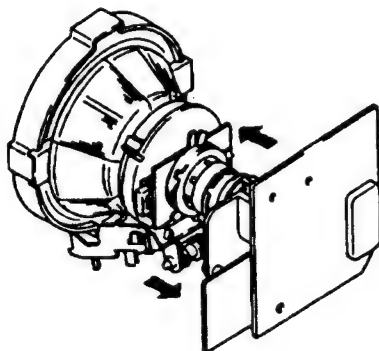


Fig.3-1

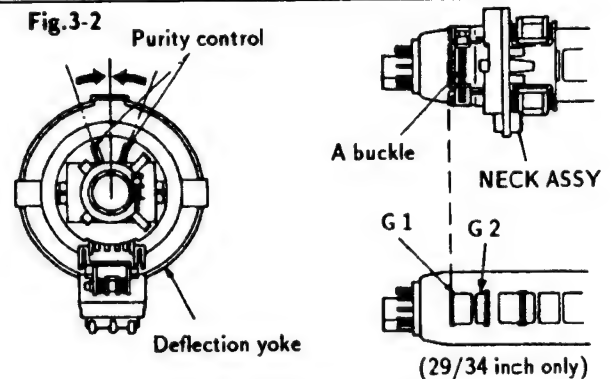


Fig.3-3

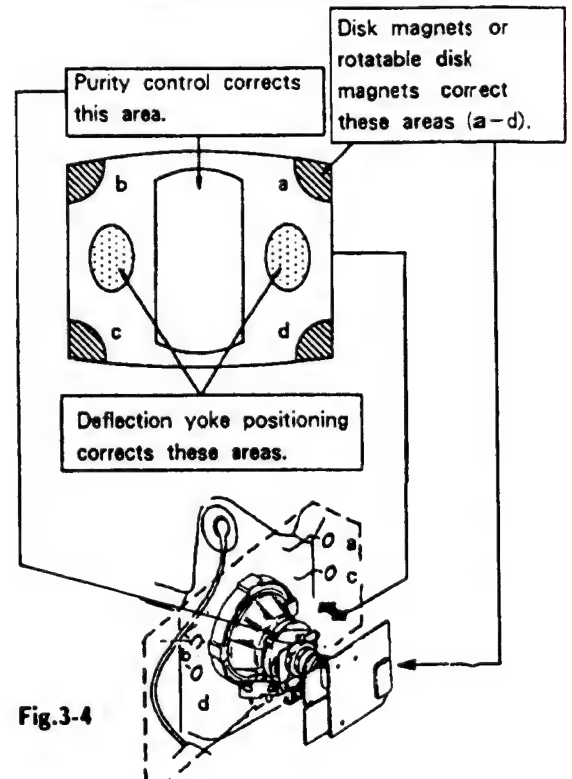
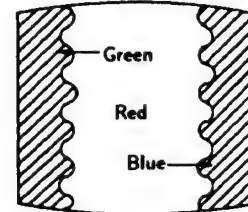


Fig.3-4

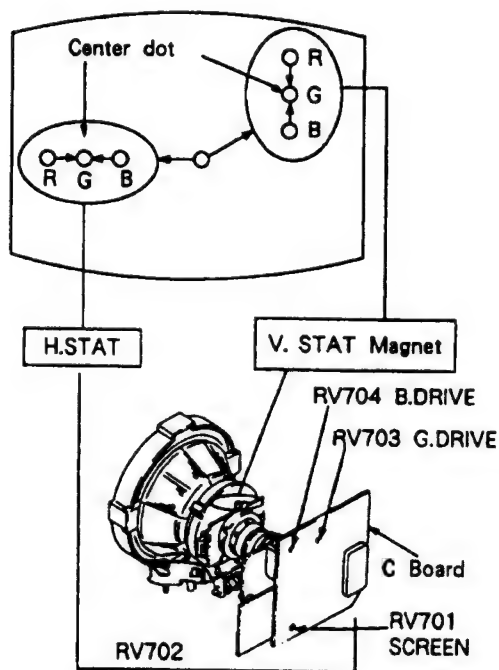


### 3-2. CONVERGENCE

#### Preparations :

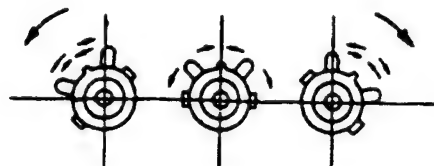
- Before starting this adjustment, adjust the focus, horizontal size, and vertical size.
- Minimize the brightness setting.
- Provide dot pattern.

#### (1) Horizontal and vertical static convergence

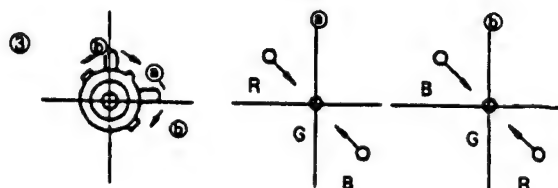
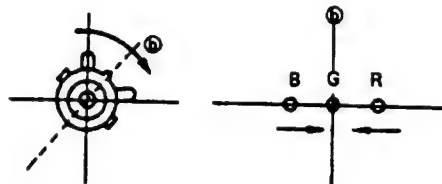
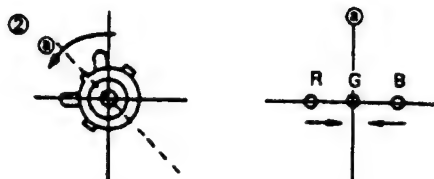
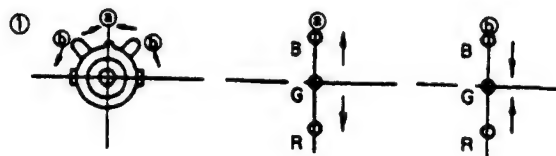


1. (Moving horizontally), adjust the H.STAT control so that the red, green, and blue points are on top of each other at the center of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green, and blue points are on top of each other at the center of the screen.
3. If the H.STAT variable resistor cannot bring the red, green, and blue points together at the center of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V. STAT magnet in the manner given below. (In this case, the H.STAT variable resistor and the V. STAT magnet influence each other)

- Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT magnet.

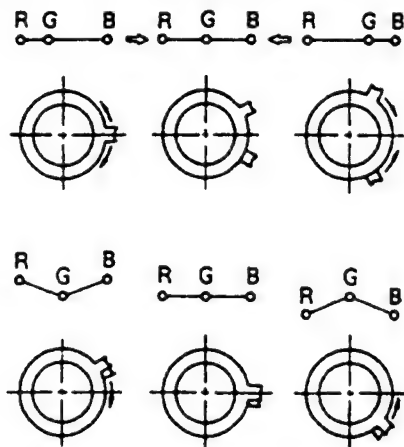


4. If the V.STAT magnet is moved in the direction of the (a) and (b) arrows, the red, green, and blue points move as shown below.



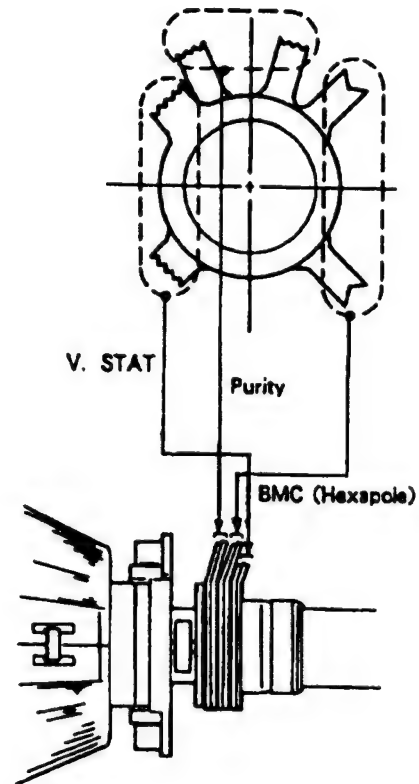


● Operation of BMC (Hexapole) Magnet



- The respective dot positions resulting from moving each magnet interact, so be sure to perform adjustment while tracking.

Use the H.STAT VR to adjust the red, green, and blue dots so they coincide at the center of screen (by moving the dots in the horizontal direction).

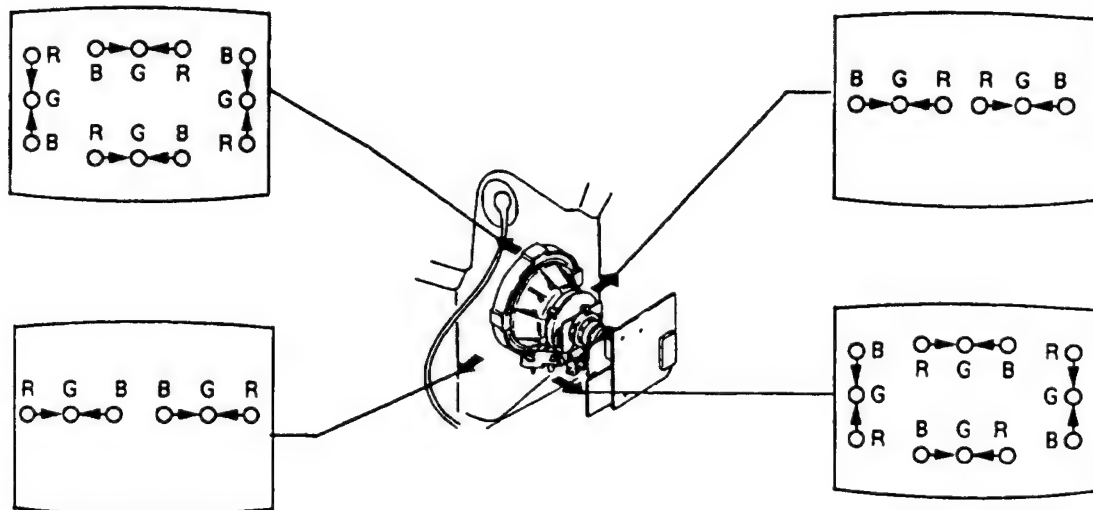


(2)Dynamic convergence adjustment

**Preparations :**

- Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence.
1. Slightly loosen the deflection yoke screws.

2. Remove the deflection yoke spacer.
3. Move the deflection yoke as shown in the figure below and optimize the convergence.
4. Tighten the deflection yoke screws.
5. Install the deflection yoke spacer.



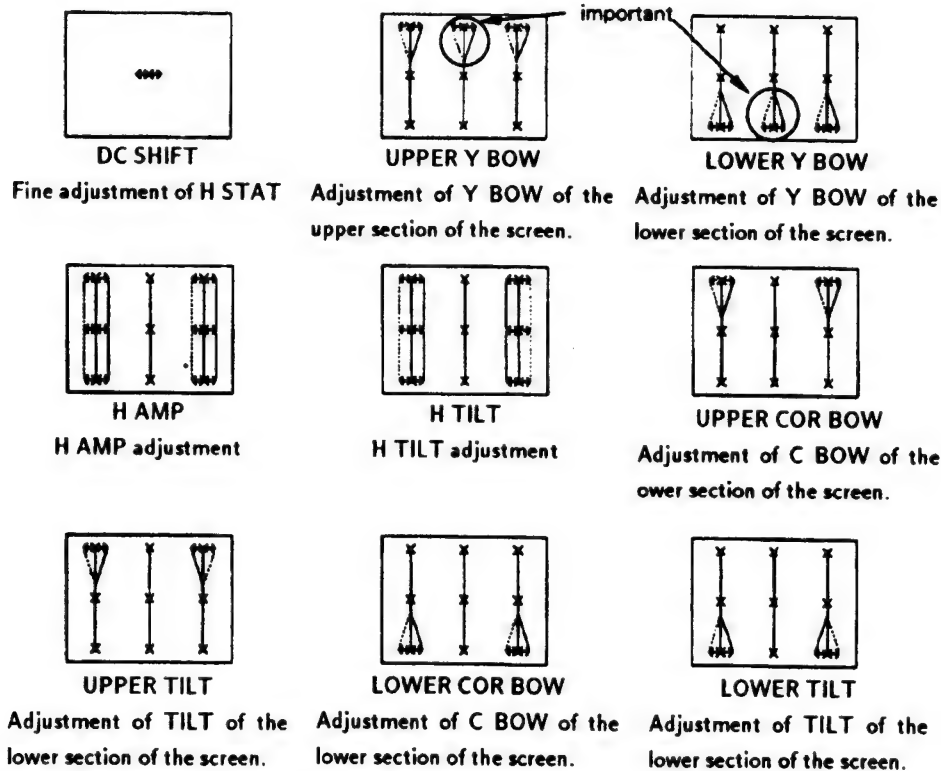


**(3) Dynamic convergence adjustment**  
(34 inch only)

1. Adjust horizontal convergence located at the center position of the screen with H STAT VR.
2. Enter into service mode. (Refer to the section 2 "Electrical Adjustment" on how to enter service mode.)
3. Select CXA 1526 on menu.
4. Select each item and adjust them so that each item attains optimal convergence.
5. Press **OK** button to write the data.

CXA 1526		
1	DC SHIFT	(32)
2	UPPER Y BOW	(4)
3	LOWER Y BOW	(5)
4	H AMP	(48)
5	H TILT	(29)
6	UPPER COR BOW	(32)
7	UPPER TILT	
8	LOWER COR BOW	(32)
9	LOWER TILT	(32)

R.G.B.dots movement on the screen of the set

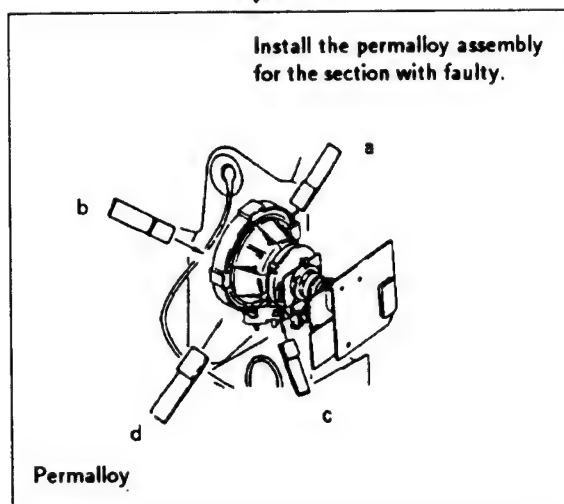
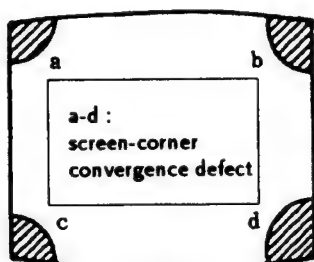


At this time, H.TILT, H.AMP, UPPER TILT, UPPER COR, BOW, LOWER TILT, and LOWER COR, BOW look like all the same, but the movement of the right and left dots are reverse in all the TILT system. (Pay attention to the dotted lines.)



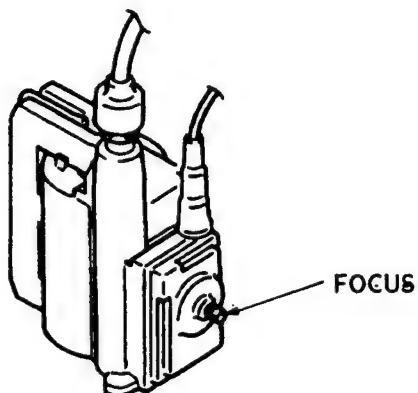
#### (4) Screen corner convergence

If you cannot adjust corner convergence properly, correct them with permalloy.



#### 3-3. FOCUS

Adjust the focus to optimize the screen.



#### 3-4. WHITE BALANCE

##### Screen G2 Setting

1. Input the dot signal from the pattern generator.
2. Set the picture brightness control to its lowest level.
3. Apply 180V DC to the R,G, and B cathodes with an external power supply.
4. While watching the picture, adjust G 2 control RV 701 (Screen) to the point just before the return lines disappear.

##### White balance adjustment

1. Receive all-white signal.
2. Enter into service mode. (Refer to the section 4 "Electrical Adjustment" to how to enter service mode.)
3. Select CXA 1587 on menu.

09	SUB BRIGHT	ADJ.
10	SUB HUE	7
11	VM LEVEL	2
12	NR LEVEL	0
13	ABL MODE	0
14	G-DRIVE	ADJ.
15	B-DRIVE	ADJ.
16	G-AUTO CUT OFF	ADJ.
17	B-AUTO CUT OFF	ADJ.
18	R-MANUAL CUT OFF	ADJ.
19	G-MANUAL CUT OFF	ADJ.
20	B-MANUAL CUT OFF	ADJ.

4. Set picture to MAX.
5. Adjust G-DRIVE B-DRIVE with buttons so that the white balance becomes optimum.
6. Press button to write the data for each item.
7. Set picture to MIN.
8. Adjust G-AUTO CUT OFF, B-AUTO CUT OFF, R-MANUAL CUT OFF, G-MANUAL CUT OFF and B-MANUAL CUT OFF with buttons so that the white balance becomes optimum.
9. Press button to write the data for each item.



## SECTION 4

### CIRCUIT ADJUSTMENTS

#### 4-1. ELECTRICAL ADJUSTMENTS

Service adjustment to this model can be performed with the supplied remote commander, RM-830 (for 25/29 inch) or RM-830 (for 34 inch)

##### HOW TO ENTER INTO SERVICE MODE

1. Turn on the main power switch of the set while pressing any two buttons on the front panel.

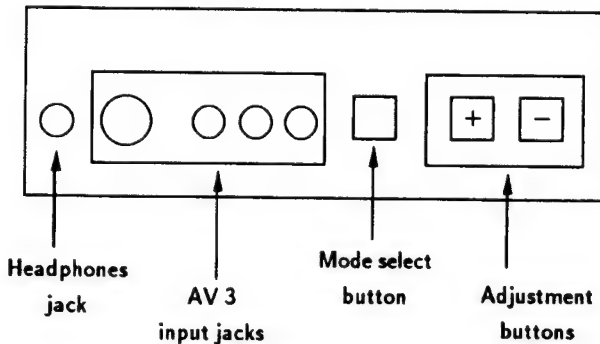


Fig.4-1

2. "TT" will appear on the upper right corner of the screen.

Command operation in service mode

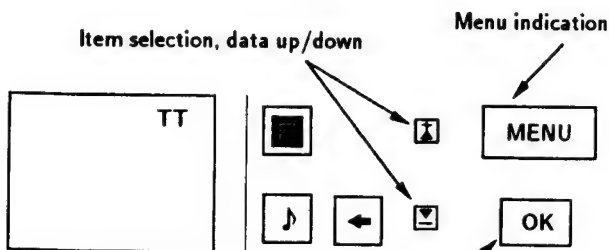


Fig.4-2

Fig.4-3

3. Press the **MENU** button of the commander to get the menu on screen.

MAIN MENU	
Programme Table	
Video Connection	
Picture Control	
Sound Control	
Timer	
Preset	
Language	
> DEMO	
Select < > and press OK	

Fig.4-4

4. Press the **▲** and **▼** buttons of the commander and move > to DEMO.
5. Press **OK** button to proceed to the next menu.
6. The menu of fig.4-5 will appear on screen. Select **DEVICE** corresponding to the adjustment item from the table on next page.

DEVICE	
Initialize	
> CXA 1587	
CXD 2018	
TDA 9145	
TDA 1526	
TDA 6612	
CXA 7948 A	
P/P service	
Select < > and press OK	

Fig.4-5

7. If adjustment item is CXA 1587, press the **▼** button and move > to CXA 1587.

##### CXA 1587 S

Item No.	Adjustment item	Data Amount
01	PICTURE	3
02	COLOR	1
03	BRIGHT	1
04	HUE	1
05	SHARPNESS	7
06	RGB PICTURE	3
07	SUB CONTRAST	ADJ.
08	SUB COLOR	ADJ.
> 09	SUB BRIGHT	ADJ.
10	SUB HUE	7
11	VM LEVEL	2
12	NR LEVEL	0
13	ABL MODE	0
14	G-DRIVE	ADJ.
15	B-DRIVE	ADJ.

8. Press **OK** button to get the next selection menu.
9. Press **▼** button and move > to the adjustment item and press **OK** button.
10. Press the **▲** and **▼** buttons to change the data in order to comply each standard.
11. Press **OK** button to write data.
12. Turn off the power to quit service mode when completing the adjustment.



CXA 1587 S

01	PICTURE	53
02	COLOR	31
03	BRIGHT	31
04	HUE	31
05	SHARPNESS	7
06	RGB PICTURE	13
07	SUB CONTRAST	ADJ.
08	SUB COLOR	ADJ.
09	SUB BRIGHT	ADJ.
10	SUB HUE	7
11	VM LEVEL	2
12	NR LEVEL	0
13	ABL MODE	0
14	G-DRIVE	ADJ.
15	B-DRIVE	ADJ.
16	G-AUTO CUT OFF	ADJ.
17	B-AUTO CUT OFF	ADJ.
18	R-MANUAL CUT OFF	ADJ.
19	G-MANUAL CUT OFF	ADJ.
20	B-MANUAL CUT OFF	ADJ.
21	GAMMA LEVEL	0
22	DC TRANSFER RATIO	3
23	DINAMIC PICTURE	0
24	Y FILTER ADJ	ADJ.
25	Y DELAY TIME	15
26	Y DELAY SWITCH 1	0
27	Y DELAY SWITCH 2	1
28	SHARPNESS LIMIT	ON
29	ALL BLK	OFF
30	H SHIFT	32
31	DAC TEST	ON
32	PRE/OVER SHOOT	7
33	SHARPNESS FO	2
34	SUB SHARPNESS	3
35	R MUTE	OFF
36	G MUTE	OFF
37	B MUTE	OFF

CXA 1526		ADJ.
1	DC SHIFT	(32)
2	UPPER Y BOW	(4)
3	LOWER Y BOW	(5)
4	H.AMP	(48)
5	H TILT	(29)
6	UPPER COR BOW	(32)
7	UPPER TILT	(32)
8	LOWER COR BOW	(32)
9	LOWER TILT	(32)

34 inch only

38	AGING 1	OFF
39	AGING 2	OFF
40	AKB OFF	ON
41	INHIBIT RGB	OFF
42	FORCED RGB	OFF
43	V/2 V	OFF
44	AXIS	PAL
45	HUE SW	OFF
46	V EXTENTION	OFF
47	AFC 1	1
48	AFC 2	0
49	AFC OFF	ON
50	REF.POSITION	0

CXD 2018 Q

01	V SIZE	ADJ.
02	V SHIFT	ADJ.
03	S CORRECTION	ADJ.
04	V LINEARITY	ADJ.
05	H SIZE	ADJ.
06	PIN AMP	ADJ.
07	TILT	ADJ.
08	UPPER CORNER	ADJ.
09	LOWER CORNER	ADJ.
10	V BOW	ADJ.
11	ANGLE	ADJ.
12	HV COMP.V	13
13	HV COMP.H	8
14	FRAME SHIFT	OFF
15	FREE RUN 60 Hz	OFF
16	SYSTEM 60 Hz	OFF
17	ASPECT WIDE	OFF
18	DOUBLE SCAM	OFF
19	INTERLACE	ON
20	H SHIFT	32
21	N/S CORRECTION	ADJ.

Typical Value (OSD based)when receiving PAL Philips pattern.

TDA 6612	ADJ.
Stereo-Separation	(30)

Should be adjusted twice 4 : 3 and 16 : 9 mode.



#### Y FILTER ADJUSTMENT

1. Input PAL RED pattern.
2. Connect an oscilloscope to CN 0403 ① pin (R OUT) on the C board.
3. Enter into service mode and press 3, 8.
4. Adjust data by  $\Delta$  or  $\nabla$  to minimize the chroma element of CN 0403 ① pin.

#### SUB BRIGHTNESS ADJUSTMENT

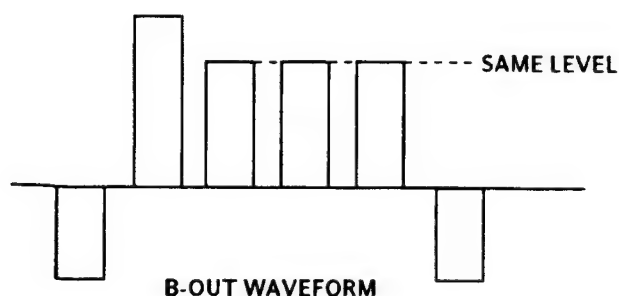
1. Input Phillips pattern.
2. Enter into service mode and press 23.
3. Adjust data so that 0-IRE of the grey scale and CUT -OFF 20-IRE glitter slightly.

#### SUB CONTRAST ADJUSTMENT

1. Input a video that contains small 100% area on the Black Back ground.
2. Enter into service mode and press 01 to have PIC max followed by 21.
3. Adjust data so that 2.5 Vp-p can be obtained at ① CN 0403 (R out).

#### SUB COLOR ADJUSTMENT

1. Input PAL color bar.
2. Connect an oscilloscope to CN 0403 ③ pin (B OUT) on the C board.
3. Enter into service mode and press 22 of CXA 1587, 8 SUB COLOR.
4. Adjust data so that the right sides of the waveform will be the same.



#### STEREO-SEPARATION ADJUSTMENT

1. Input 1 kHz stereo signal to the L-ch and 400 Hz stereo signal to the R-ch.
2. Enter into service mode and press 19.
3. Adjust data so that sound does not leak to the R-ch and the L-ch.

#### DRIVE AND CUT OFF

See direct test mode list attached and refer to sub brightness or such for adjustment method.

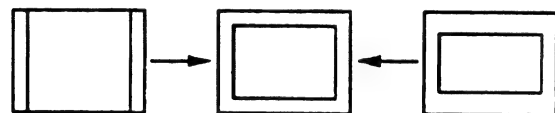


## DEFLECTION SYSTEM ADJUSTMENT

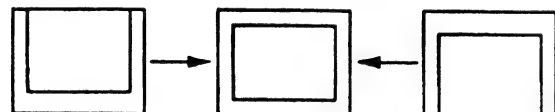
1. Enter into service mode and select CXD 1018.
2. Select and adjust each item in order to get an optimum image.

01	V SIZE	ADJ.
02	V SHIFT	ADJ.
03	S CORRECTION	ADJ.
04	V LINEARITY	ADJ.
05	H SIZE	ADJ.
06	PIN AMP	ADJ.
07	TILT	ADJ.
08	UPPER CORNER	ADJ.
09	LOWER CORNER	ADJ.
10	V BOW	ADJ.
11	ANGLE	ADJ.
12	HV COMP.V	13
13	HV COMP.H	8
14	FRAME SHIFT	OFF
15	FREE RUN 60 Hz	OFF
16	SYSTEM 60 Hz	OFF
17	ASPECT WIDE	OFF
18	DOUBLE SCAM	OFF
19	NON INTERLACE	ON
20	H SHIFT	32
21	N/S CORRECTION	ADJ.

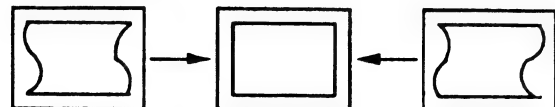
### V SIZE



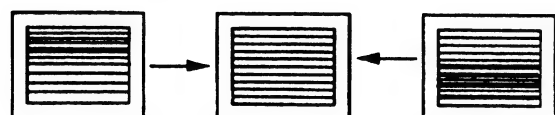
### V SHIFT



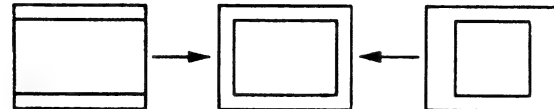
### S CORRECTION



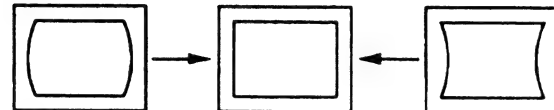
### V LINEARITY



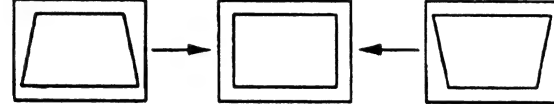
### H SIZE



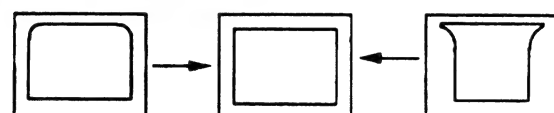
### PIN AMP



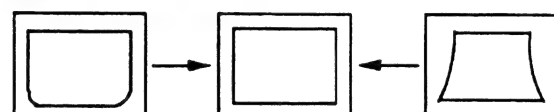
### TILT



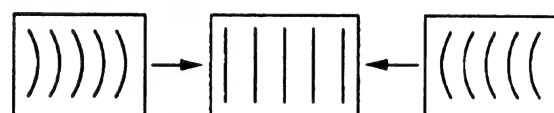
### UPPER CORNER PIN



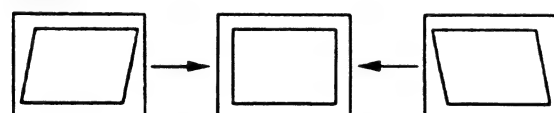
### LOWER CORNER PIN



### V BOW



### ANGLE



### H SHIFT



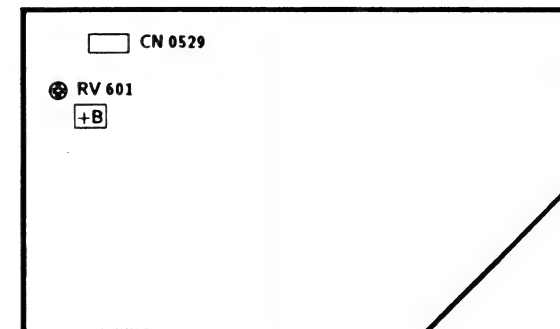
3. Press **OK** button to write the data.

If menu display may disturb the adjustment press **⏏** to clear, to resume it, press **⏏** again.

## 4-2. VOLUME ELECTRICAL ADJUSTMENTS

### +B (+135 V) ADJUSTMENT (RV 601)

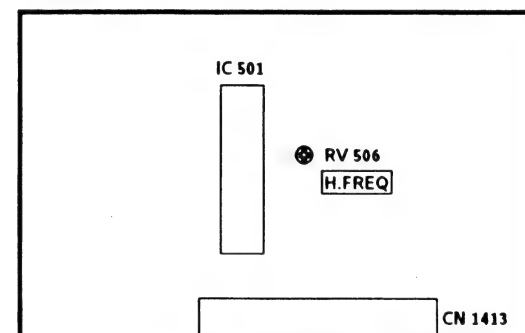
#### D BOARD



1. Turn on the power of the TV set.
2. Connect a digital multi-meter to ① pin of CN 0529 on D board.
3. Adjust RV 601 on D board to +135 V.

### H.FREQ ADJUSTMENT (RV 506)

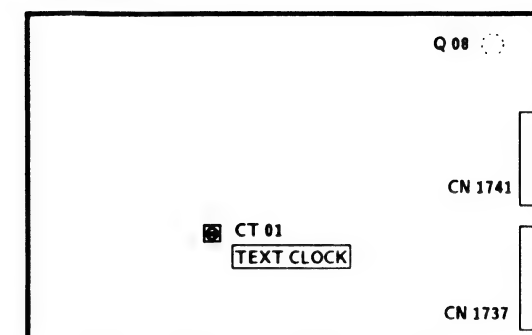
#### M BOARD



1. Connect GND to ⑫ pin of IC 501 on M board.
2. Connect a frequency counter to ④ pin of IC 501.
3. Adjust RV 506 on M board to 15,625+100 Hz.
4. Remove ⑫ pin of IC 501 from GND.

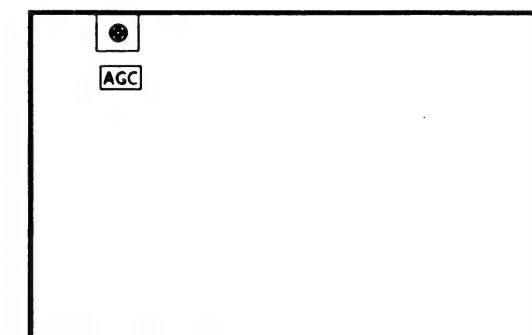
### TEXT CLOCK ADJUSTMENT (CT 01)

#### V BOARD



1. Get TEXT MENU on screen.
2. Connect GND and the base of Q 08 on V board.
3. Adjust CT 01 on V board so that the MENU stands still as much as possible.

### AGC ADJUSTMENT (IF BLOCK)



1. Receive off-air signal.
2. Adjust AGC VR so that there is no snow noise and cross-modulation.
3. Change receiving channel and confirm status.

## 4-3. T

Is avai  
by pre

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13-1
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24-2



### 4-3. TEST MODE 2 :

Is available by pressing Test button two times, OSD "TT" appears. The functions described bellow are available by pressing the two numbers. To release the Test Mode 2, press two times 0, or switch TV in Standby Mode.

00	switch Test Mode 2 off
01	picture maximum
02	picture minimum
03	Volume 35%
04	Volume 50%
05	Volume 65%
06	Volume 80%
07	Aging Condition (Volumin., Picture max., Brightness max., Aging 2 Mode of CXA 1587, TDA 2595 is locked to CXA 1587 via PIN 34 of $\mu$ -Con.)
08	Shipping Condition (Analog Values are RESET due to factory setting, Prog 1 is selected, TT Mode is switched off)
09	dummy
10	Tenth entry is deleted
11	Balance
12	Hue
13-14	dummy
15	Read factory setting from NVM Reads Volume, Balance, Treble, Bass, Brightness, Contrast, Hue, Sharpness, Colour values from ROM to the actual used values (Last Power Memory)
16	Save actual used values as RESET values Memorize actual used values Balance, Treble, Bass, Hue, Sharpness at RESET position in NVM
17	Preset Level for AV Sources
18	dummy
19	Stereo Seperation
20	Tenth entry is deleted
21	Sub Contrast
22	Sub Colour
23	Sub Brightness
24-29	dummy

30	Tenth entry is deleted
31	Green Drive
32	Blue Drive
33	Green Cut Off (Auto Cut Off)
34	Blue Cut Off (Auto Cut Off)
35	Red Cut Off (Manual Cut Off) (Auto Cut Off is switched off)
36	Green Cut Off (Manual Cut Off) (Auto Cut Off is switched off)
37	Blue Cut Off (Manual Cut Off) (Auto Cut Off is switched off)
38	Y-Filter adjustment (Trap is switched off and TDA 9145 is switched in forced NTSC Mode)
39	dummy
40	Tenth entry is deleted
41	Default setting of CXA 1587 (Only in Plog 99 available)
42	Default setting of CXA 2018 (Only in Plog 99 available)
43	Default setting of CXA 1526 (Only in Plog 99 available)
44	(all Port High) Not yet
45	(all Port High) Not yet
46-48	dummy
49	Erease the NVM Testbyte (this byte detects already stored NMV's) After selecting this function, switch TV Off and On $\rightarrow$ the NVM will be preset by $\mu$ -Controller. (Not the channel data)

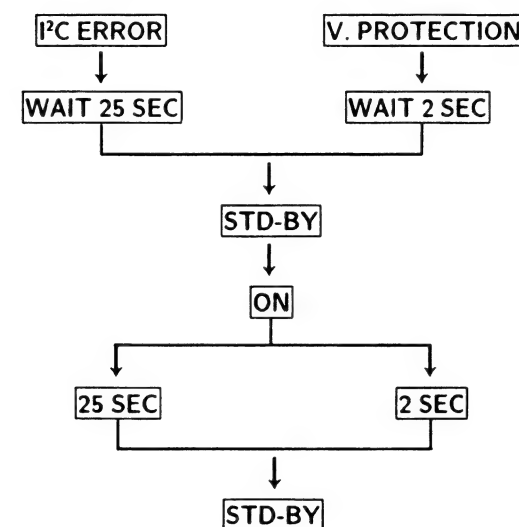
Note : For No. 35, 36, 37 and 38 special pressing (AKB, forced Color Mode, Trap) is selected. After selecting a new Test Mode Number, the AKB is switched ON, the Trap is switched On and TDA 9145 is switched to Auto Search Mode.

In Test Mode 2 the Menu display is switchable by Speaker-Off button.

### 4-4. ERROR MESSAGE

Self diagnos system can operates as follows.

- When MP can't get the acknowledge back from the device, LED starts flashing according to the table as attached.



In case of more errors in parallel, the blinking error shows max. Priority according to the error number (e.g. error 2 and error 5 appears together, then LEDs shows error 2) .

TABLE OF ERRORS

ERROR COUNT	IC TYPE	FUNCTION
1	I <sup>2</sup> C BUS	SDA low
2	X 24 C 16	EEPROM
3	SDA 3202	Tuner PII
4	TDA 9145	Colour decoder
5	CXA 1587	RGB/Jungle
6	TDA 6612	Sound processor
7	CXD 2018	V deflection
8	CXA 1545	AV switch
11	SDA 5248	Text
13		V protection

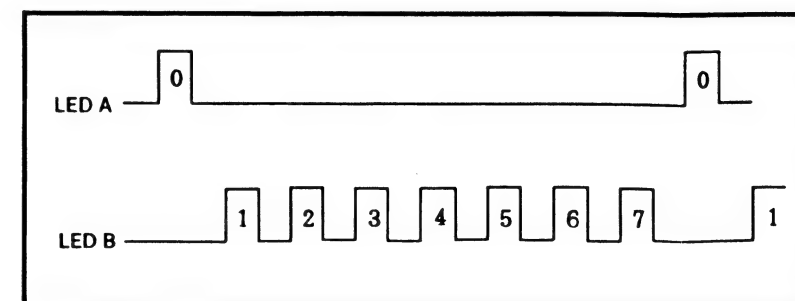
Stand by LED  
blinking

No I<sup>2</sup>C return

### 4-5. ERROR I<sup>2</sup>C BUS DIAGNOSIS SYSTEM IN AE 2 CHASSIS AVAILABLE

For all ICs in AE 2 chassis which are necessary to get picture and sound there is a built in error I<sup>2</sup>C Bus diagnosis system.

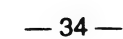
In case of no acknowledge bit, LED A and LED B starts blinking as shown.





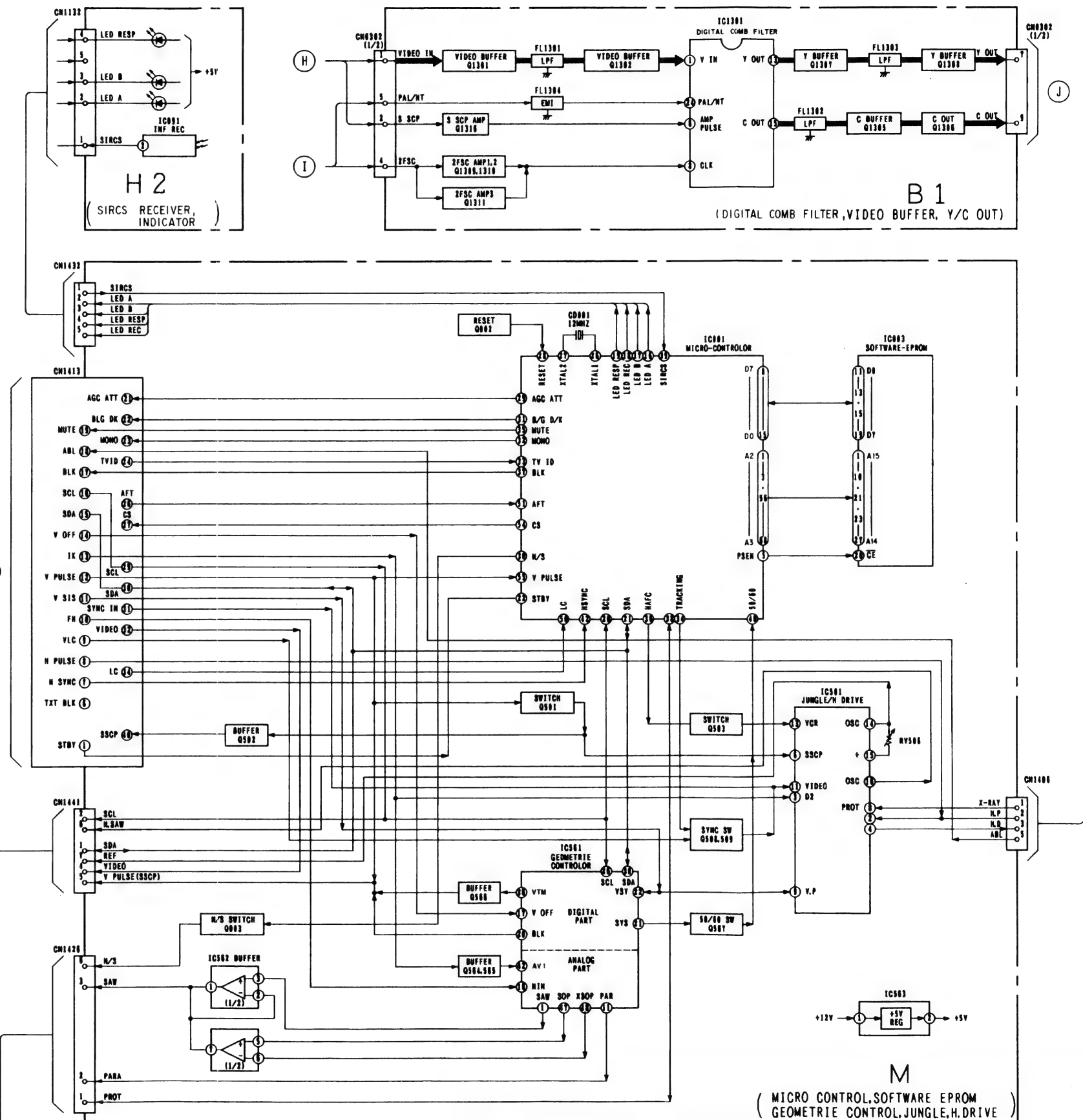
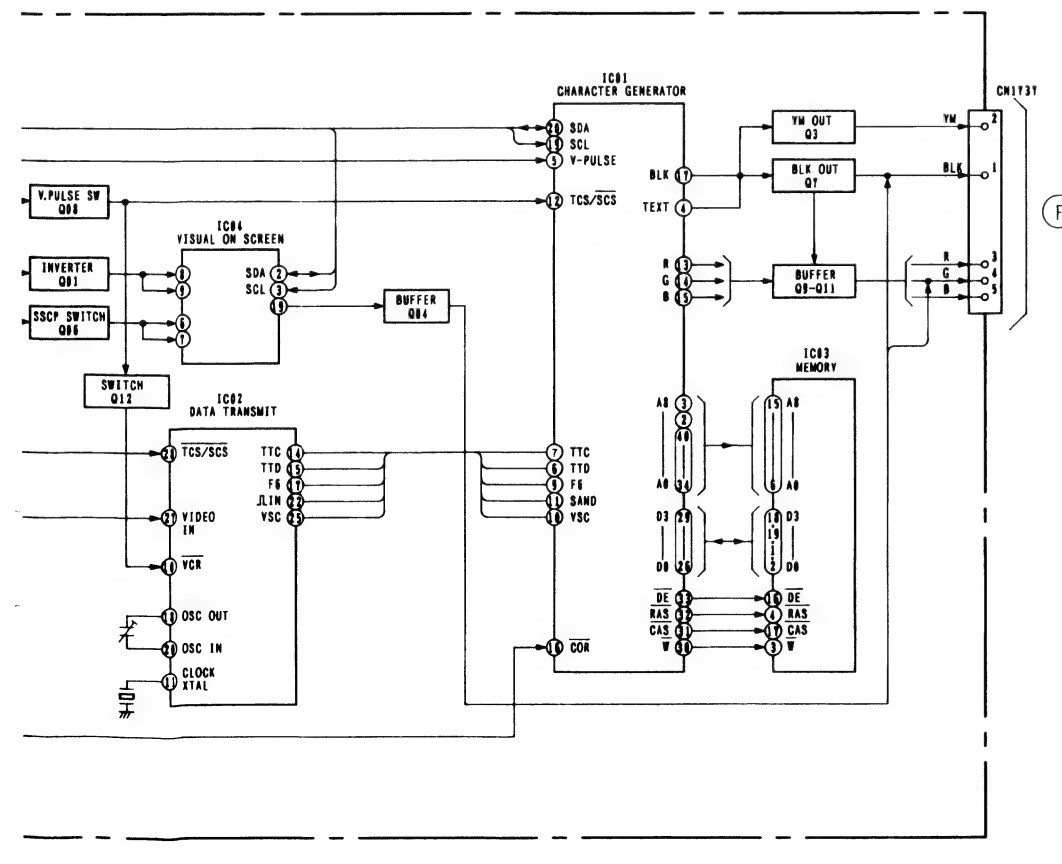
**KV-E2531D/E2931D/E3431D**  
**KV-E2531B/E2931B/E3431B**  
 RM-830 RM-830 RM-832

## 5-1. BLOCK DIAGRAMS (1)



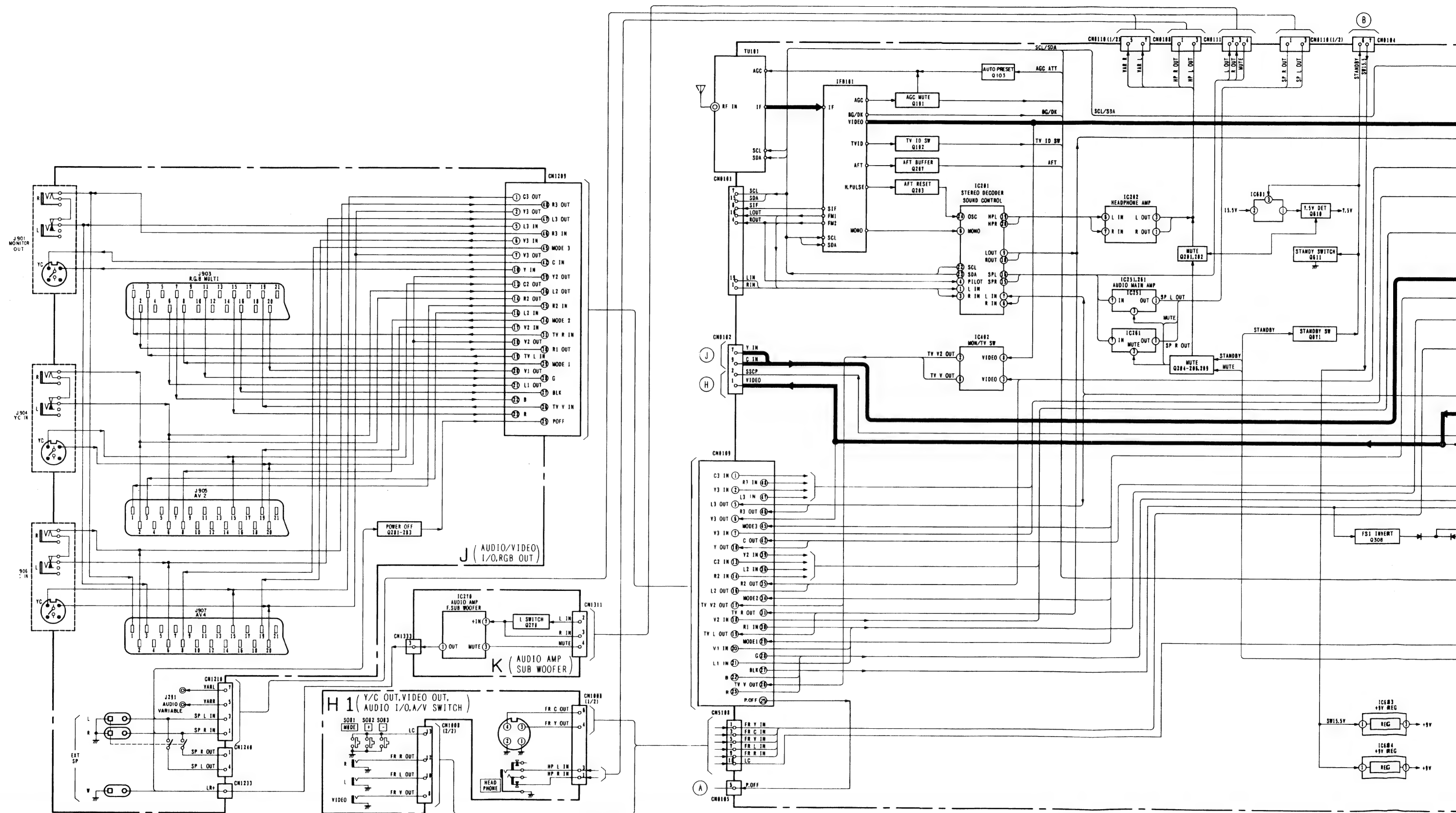


**KV-E2531D/E2931D/E3431D**  
**KV-E2531B/E2931B/E3431B**  
 RM-830 RM-830 RM-832



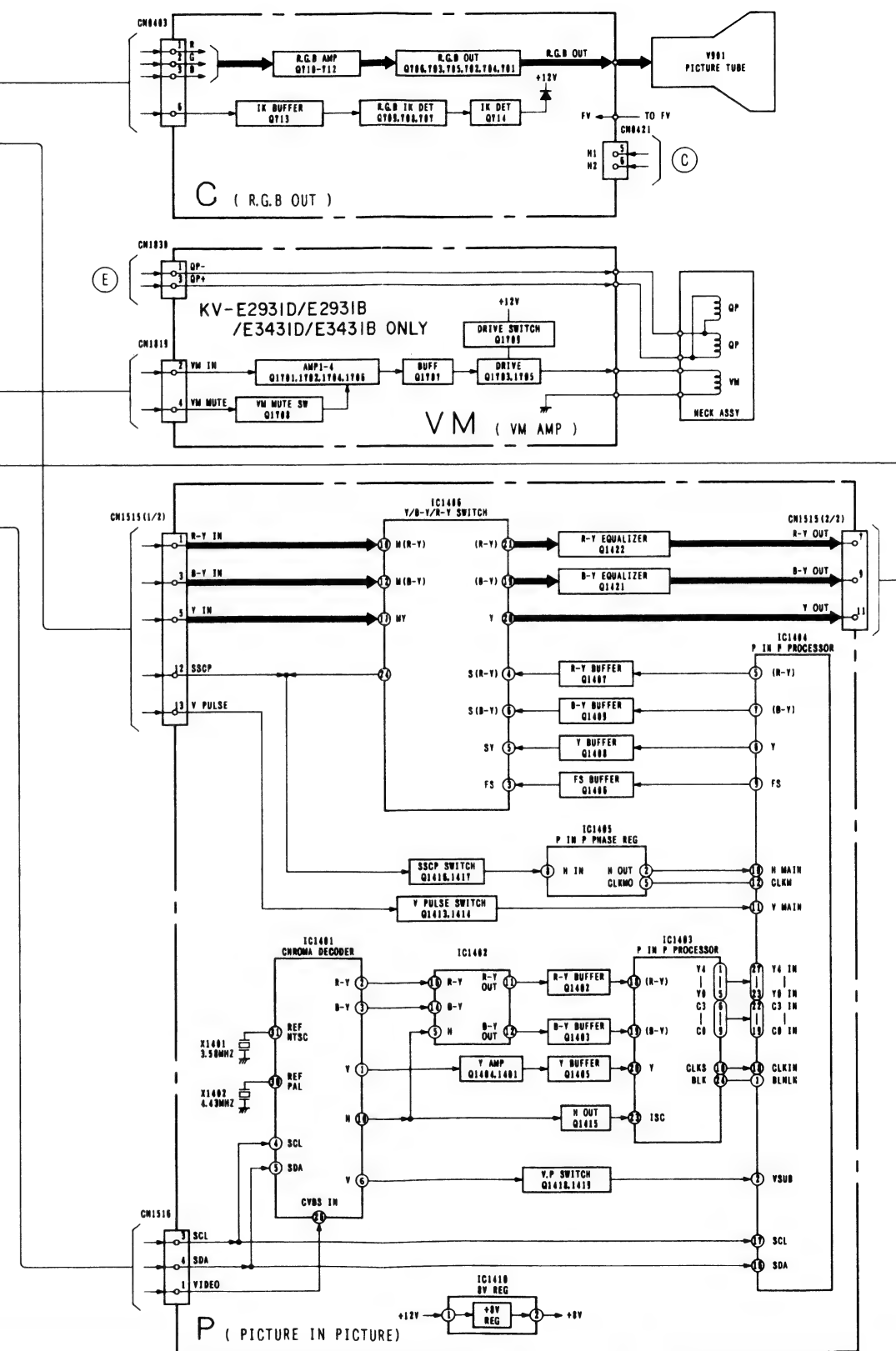


## 5-2. BLOCK DIAGRAMS (2)



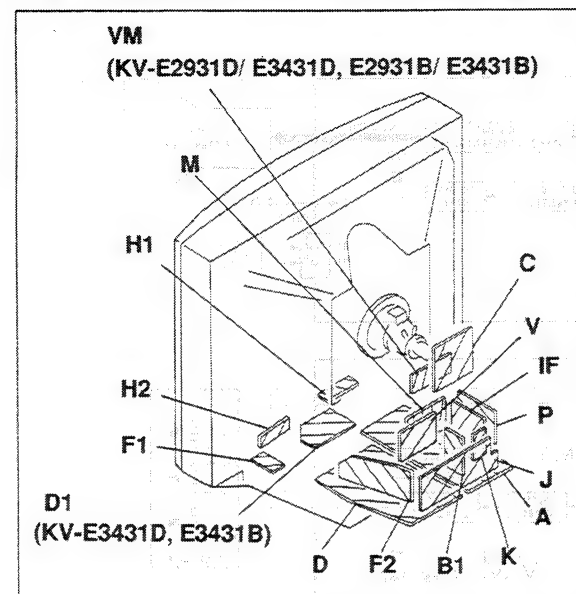


**KV-E2531D/E2931D/E3431D**  
**KV-E2531B/E2931B/E3431B**  
 RM-830 RM-830 RM-832





### 5-3. CIRCUIT BOARDS LOCATION



### 5-4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

#### — Conductor Side —

#### Note:

- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  
pF:  $\mu\text{F}$  50WV or less are not indicated except for electrolytics and tantalums.
- All electrolytics are in 50V unless otherwise noted.
- All resistors are in ohms.  
 $\text{k}\Omega = 1000\Omega$ ,  $\text{M}\Omega = 1000\text{K}\Omega$
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch: 5 mm

Rating electrical power 1/4W

- METAL FILM (:RN) resistors in 1%, 1/6W unless otherwise noted.
- Chip resistors are 1/10W unless otherwise noted.
- METAL CHIP (:RN-CP) resistors in 0.5%, 1/6W unless otherwise noted.
- : nonflammable resistor.
- : internal component.
- : panel designation, or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : earth-ground.
- : earth-chassis.

- All voltages are in V.
- Voltage are dc with respect to ground unless otherwise noted.
- Readings are taken with a 10  $\text{M}\Omega$  digital multimeter.
- Readings are taken with a color-bar signal input.
- Voltage variations may be noted due to normal production tolerance.
- No mark: PAL or COMMON
- ( ) : SECAM
- [ ] : NTSC 4.43
- < > : NTSC 3.58
- : B+ bus.
- : B- bus.
- : signal path. (RF)
- Circled numbers are waveform references.

#### Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RW	NONFLAMMABLE WIREWOUND
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: *	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

#### Note:

The components identified by shading and mark are critical for safety. Replace only with part number specified.

#### Note:

Les composants identifiés par un tramé et une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

**F2**

[LINE FILTER]

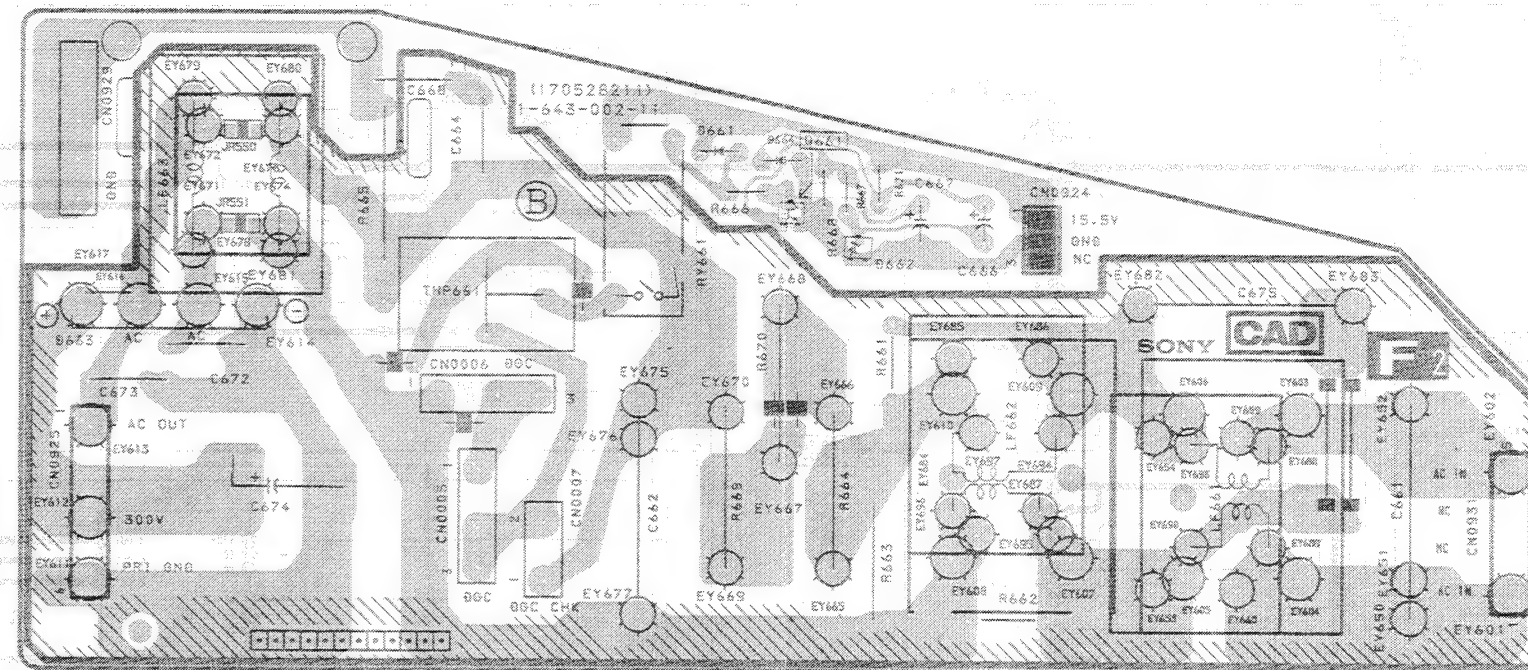
**F1**

[AC IN, POWER SW]

**H1**

[Y/C OUT, VIDEO OUT, AUDIO I/O, A/V SWITCH]

— F2 Board —





CH)

KV-E2531D/E2931D/E3431D  
KV-E2531B/E2931B/E3431B  
RM-830 RM-830 RM-832

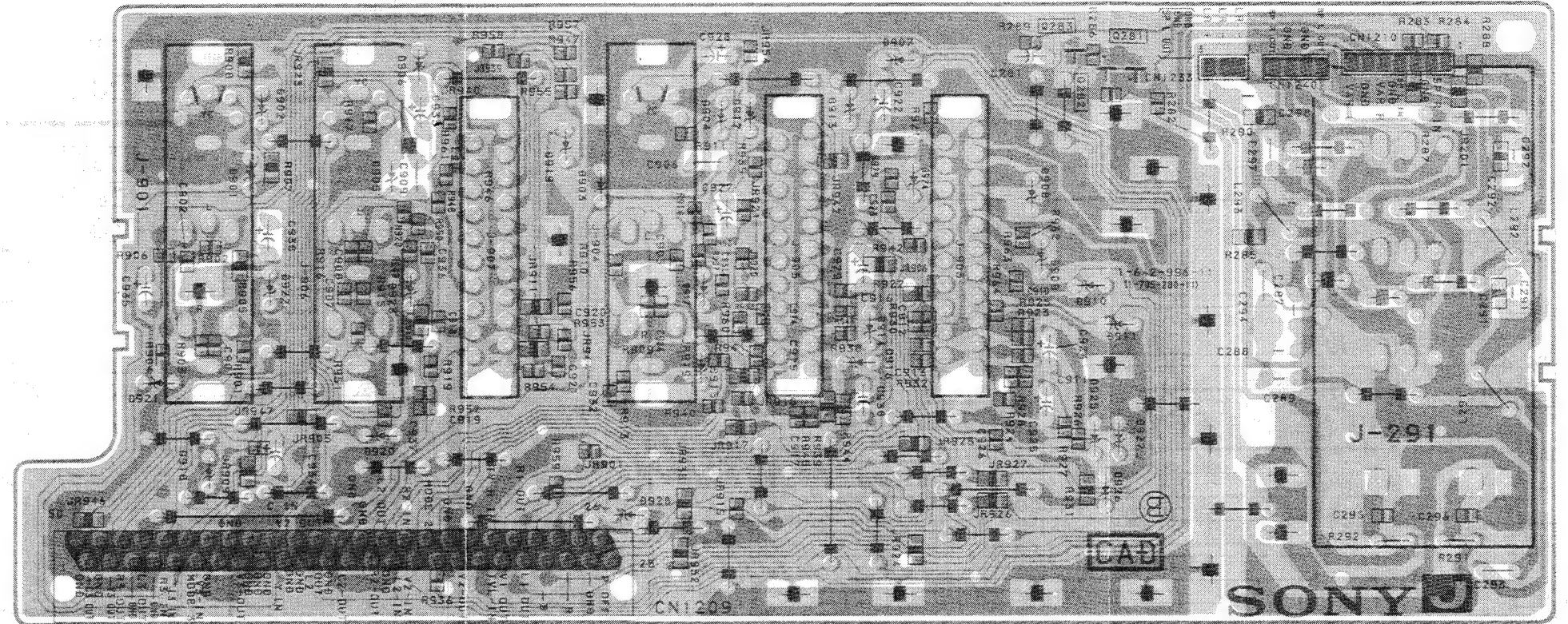
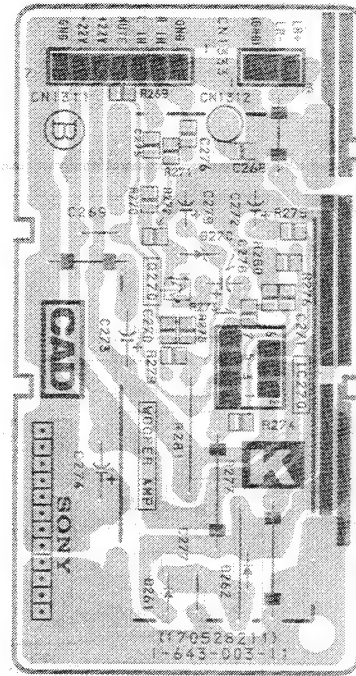
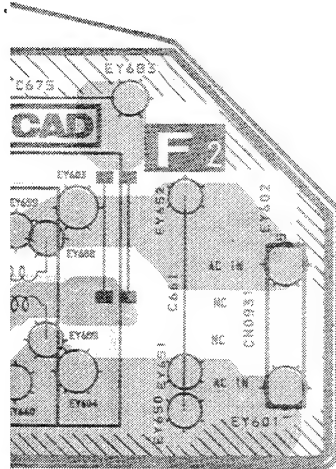
KV-E2531D/E2931D/E3431D  
KV-E2531B/E2931B/E3431B  
RM-830 RM-830 RM-832

**K** [WOOFER AMP]  
— K Board —

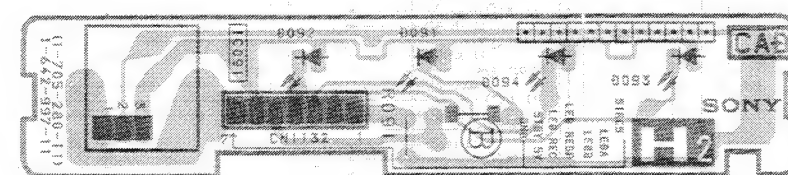
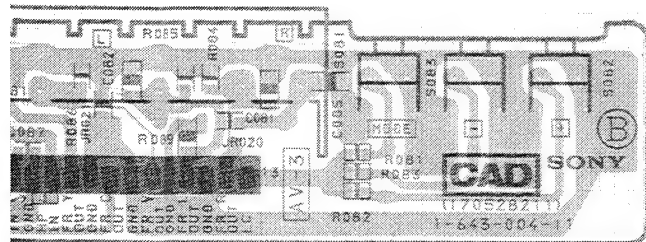
**J** [AUDIO/VIDEO I/O]  
— J Board —

**H2** [REMOTE SENSOR, A.B SAT AND RES]  
INDICATOR

2) CHARTERED 100.0 3-3

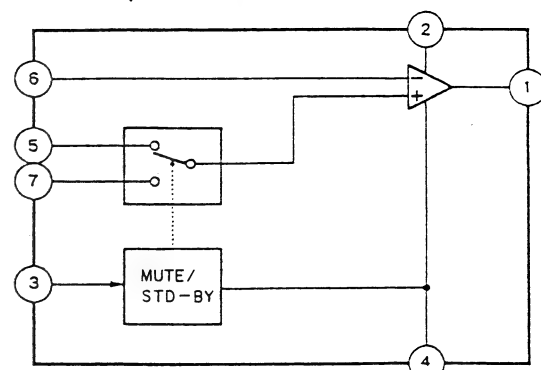


— H2 Board —



- Pattern from the side which enables seeing.
- Pattern of the rear side.



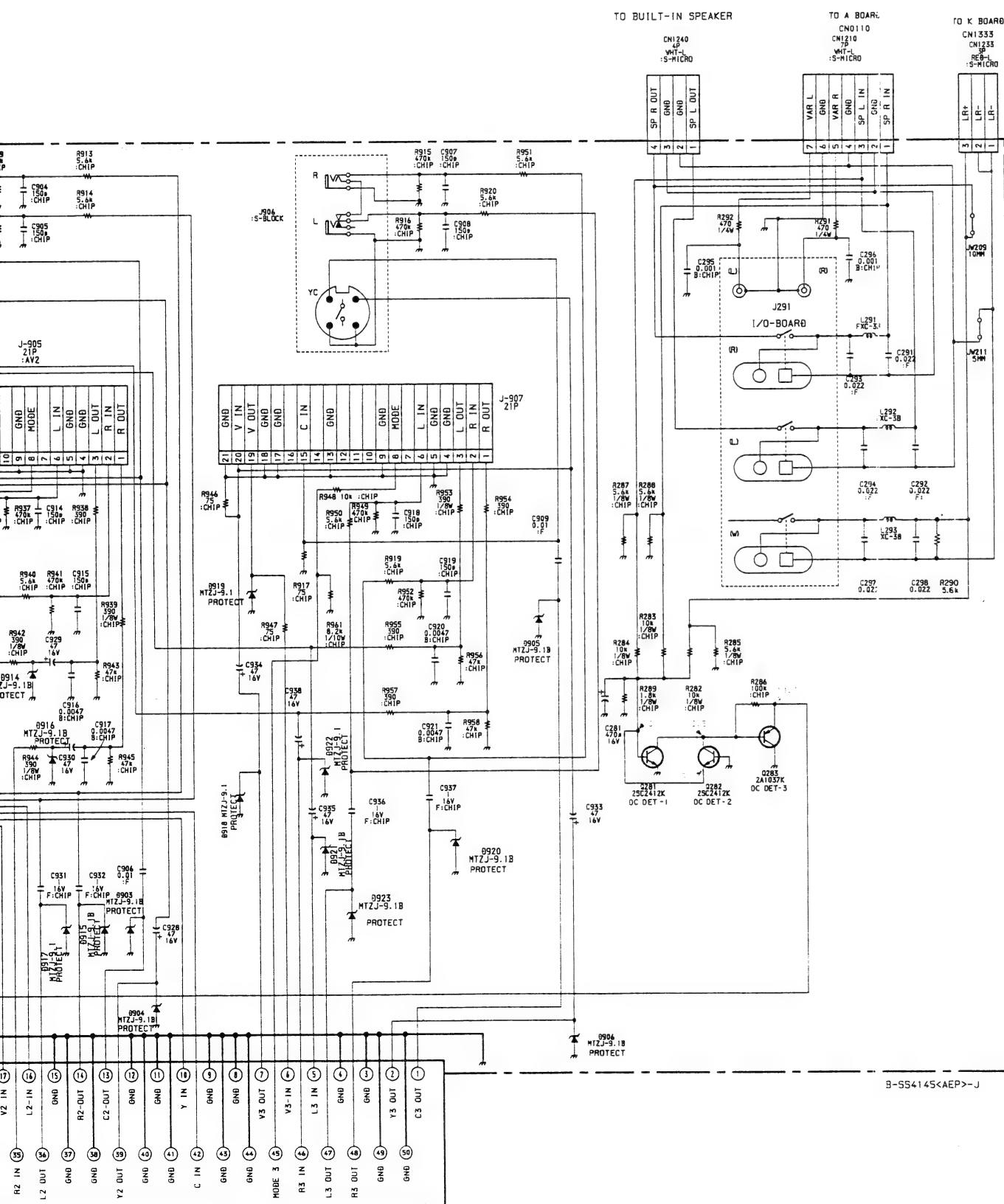


TO BUILT-IN SPEAKER

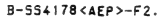
TO A BOARD

















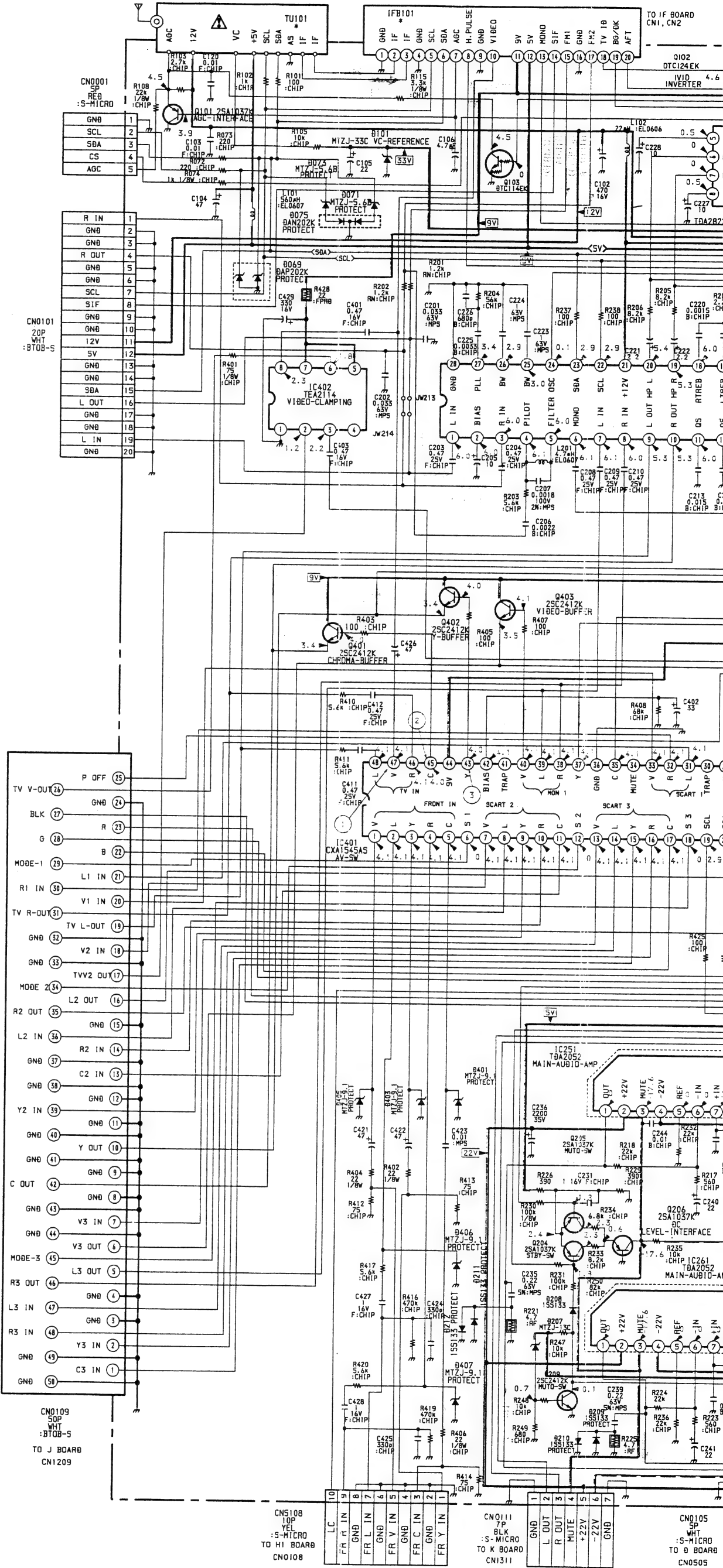
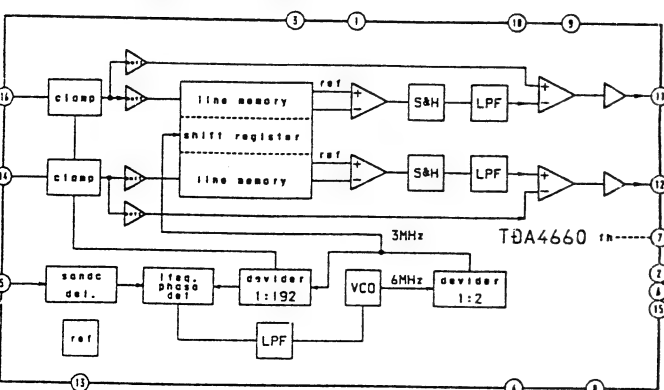
A BOARD : \* MARK

	KV-E2531D/E2931D/ E3431D	KV-E2531B/E2931B/ E3431B
C111	—	0.001 : B
IFB101	IFH-389	IFH-389F

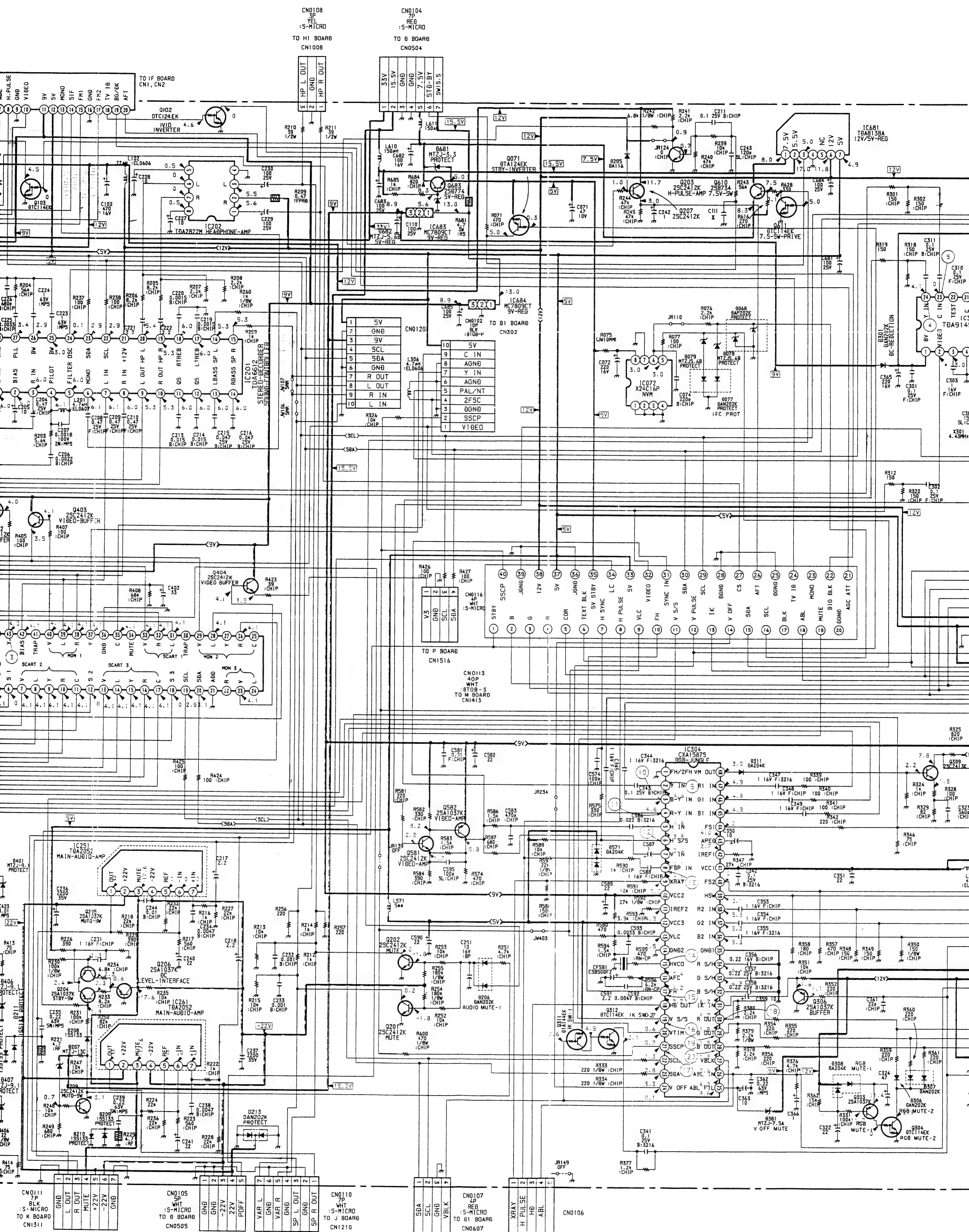
— A Board —

① PAL	① SECAM	① NTSC
1.0Vp-p (H)	1.0Vp-p (H)	1.0Vp-p (H)
② PAL	② SECAM	② NTSC
1.4Vp-p (H)	0.7 Vp-p (H)	0.75Vp-p (H)
③ PAL	③ SECAM	③ NTSC
1.7Vp-p (H)	1.8Vp-p (H)	Vp-p (H)
④ PAL	④ SECAM	④ NTSC
1.0Vp-p (H)	1.1Vp-p (H)	1.3 Vp-p (H)
⑤ PAL	⑤ SECAM	⑤ NTSC
1.4Vp-p (H)	0.4Vp-p (H)	0.36Vp-p (H)
⑥ PAL, NTSC	⑥ SECAM	⑦ PAL
0.7Vp-p (H)	1.1Vp-p (H)	1.0 Vp-p (H)
⑦ SECAM	⑦ NTSC	⑧ PAL
1.6Vp-p (H)	0.85Vp-p (H)	0.4Vp-p (H)
⑧ SECAM	⑧ NTSC	⑨
0.5Vp-p (H)	0.48Vp-p (H)	0.4 Vp-p (H)
⑩	⑪	⑫
1.9Vp-p (H)	1.4 Vp-p (H)	4.8 Vp-p (H)
⑬	⑭	⑮
6.4Vp-p (H)	0.1Vp-p (500KHZ)	4.3 Vp-p (H)
⑯	⑰	⑱
4.3Vp-p (V)	8.0Vp-p (H)	2.8 Vp-p (H)
⑲	⑳	
2.4Vp-p (H)	2.3Vp-p (H)	

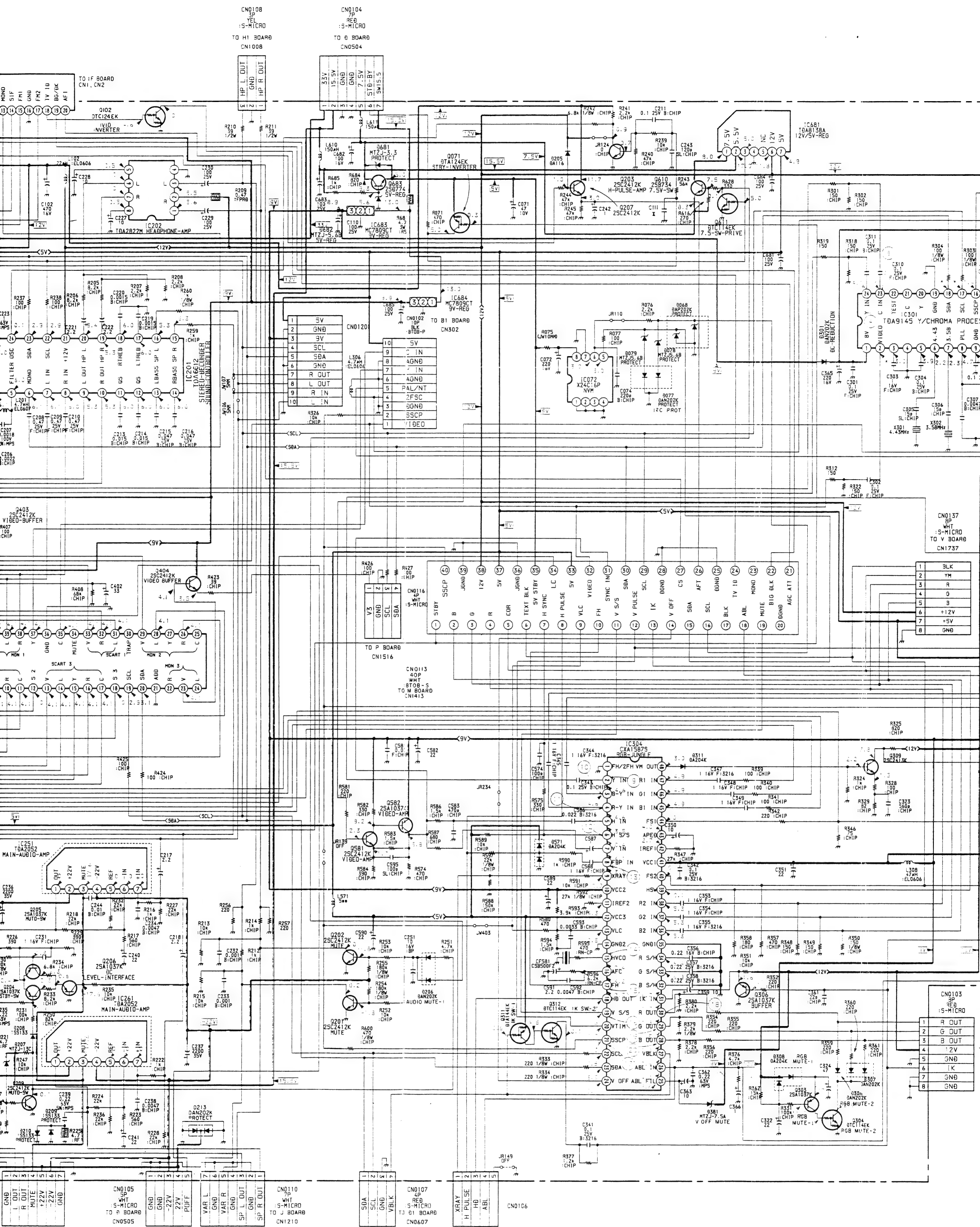
A BOARD IC302 TDA4660V2











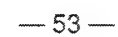




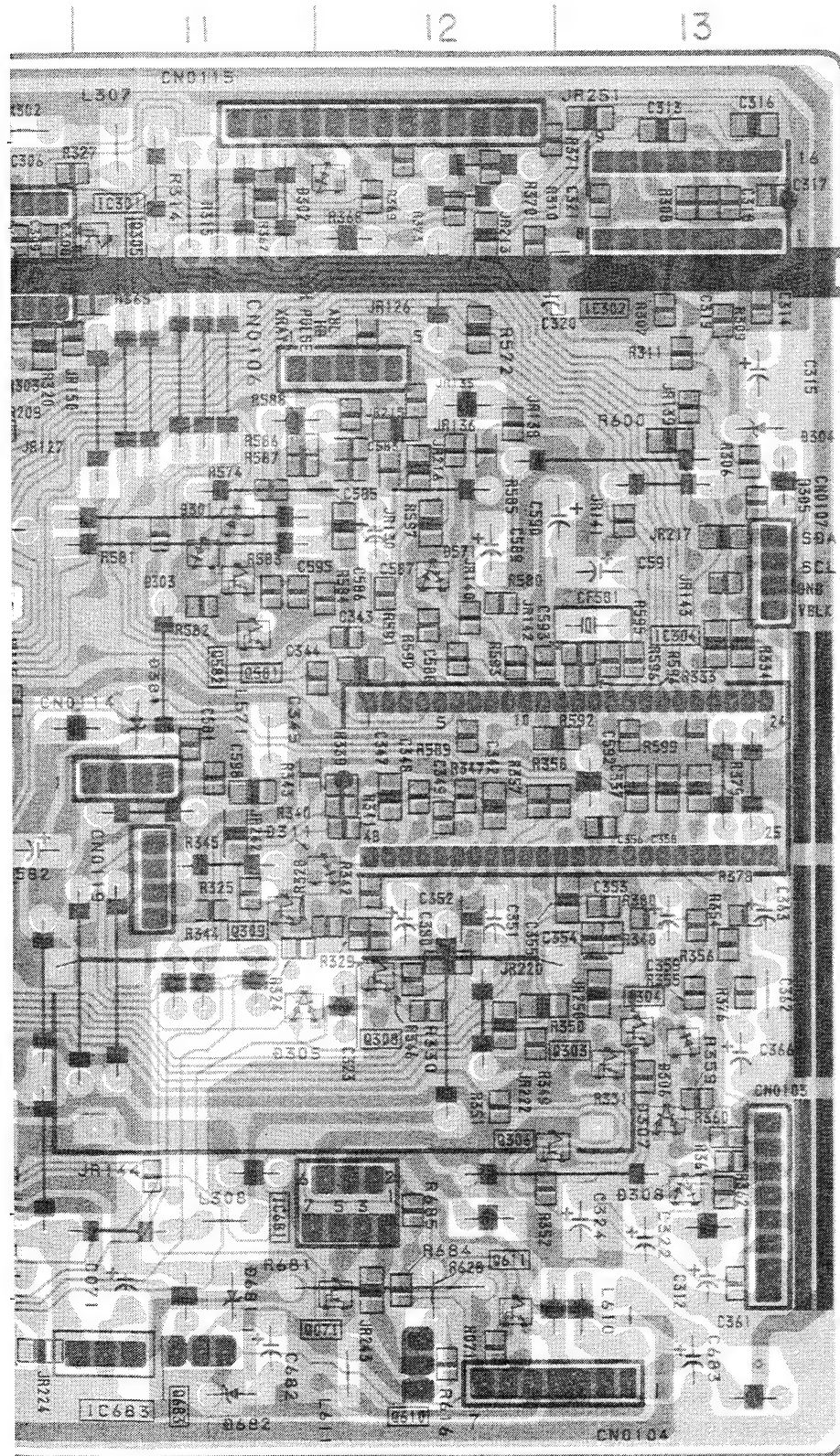


**KV-E2531D/E2931D/E3431D**  
**KV-E2531B/E2931B/E3431B**  
RM-830 RM-830 RM-832

— A Board —







KV-E2531D/E2931D/E3431D  
KV-E2531B/E2931B/E3431B  
RM-830 RM-830 RM-832

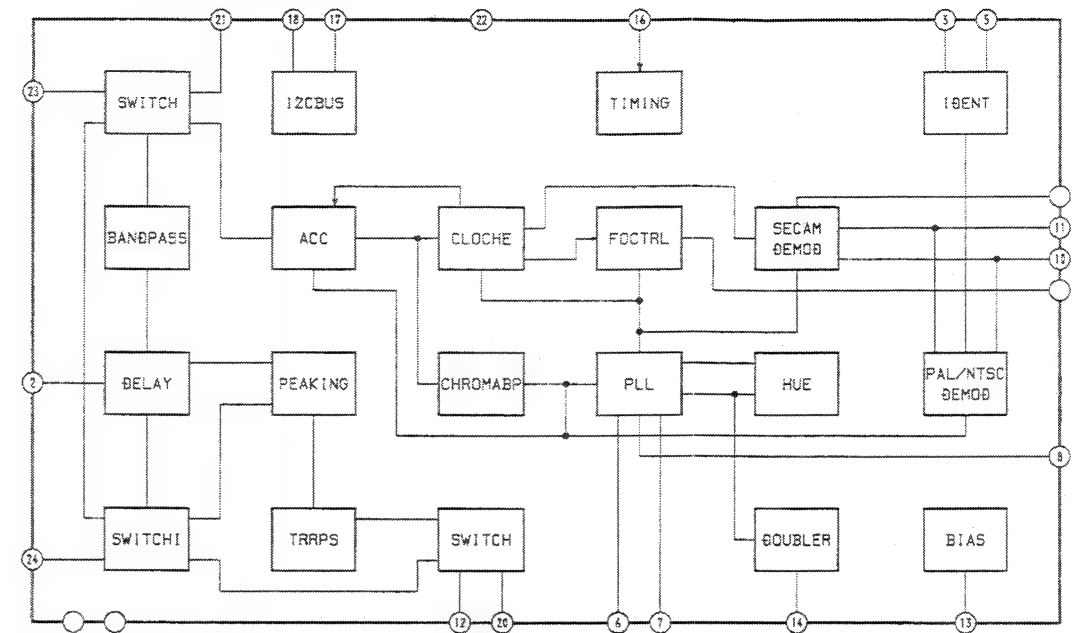
KV-E2531D/E2931D/E3431D  
KV-E2531B/E2931B/E3431B  
RM-830 RM-830 RM-832

— A Board —

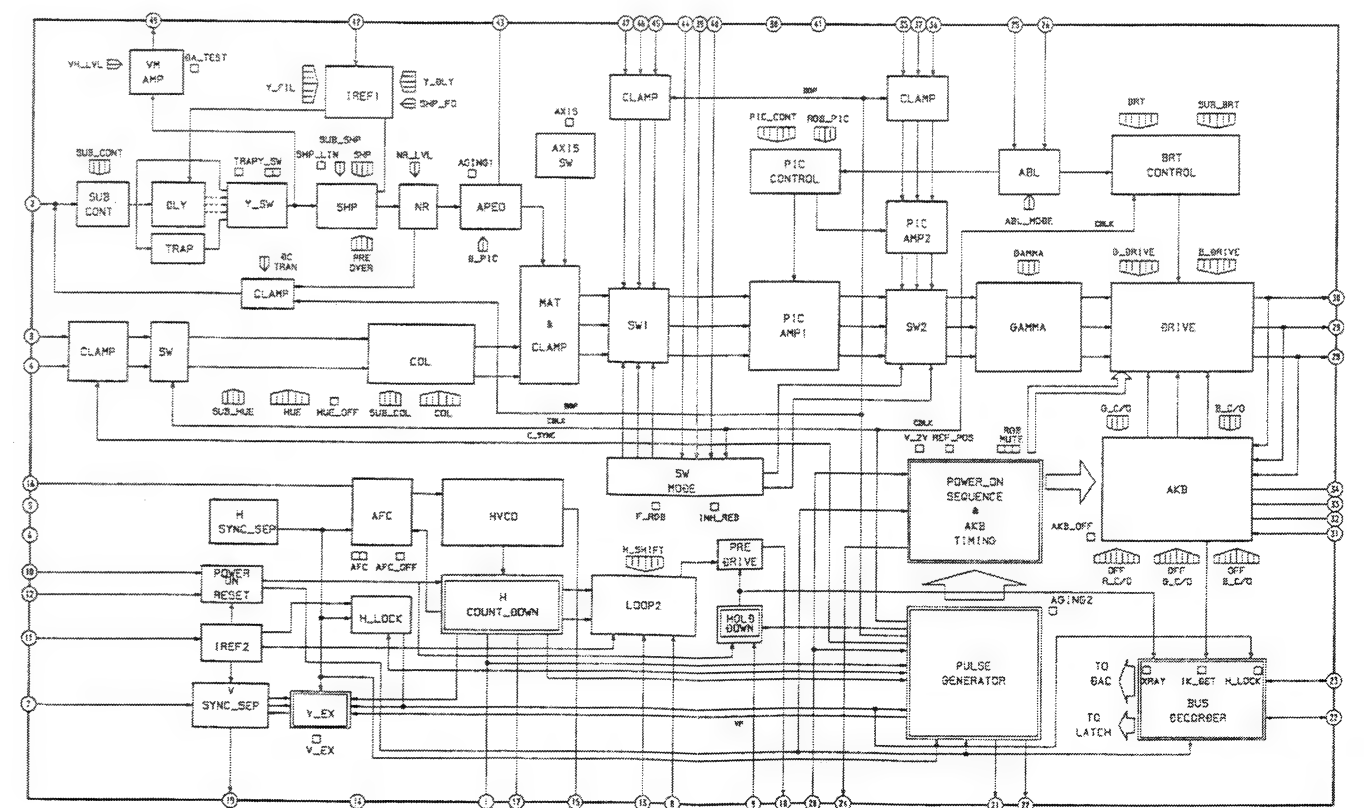
IC	Q581	C-11
IC072	B-8	Q610 F-12
IC201	D-7	Q611 F-12
IC202	D-6	Q683 F-11
IC251	E-5	
IC261	E-3	D068 B-9
IC301	A-10	D069 A-1
IC302	A-13	D071 B-1
IC304	C-12	D073 B-1
IC401	C-3	D075 A-1
IC402	D-2	D077 B-10
IC681	E-12	D078 B-9
IC683	F-11	D079 B-9
IC684	C-6	D101 B-3
		D205 A-9
		D206 E-10
Q701	F-12	D207 F-10
Q101	B-4	D208 F-10
Q102	A-9	D209 E-4
Q102	B-4	D210 E-4
Q201	E-6	D211 F-6
Q202	E-6	D212 F-6
Q203	A-6	D213 F-7
Q204	F-4	D301 B-11
Q205	F-3	D302 A-12
Q206	F-3	D303 C-11
Q207	C-9	D304 B-13
Q208	F-10	D305 D-11
Q209	A-9	D306 E-13
Q301	A-10	D307 E-13
Q302	E-13	D308 E-13
Q303	E-13	D311 D-11
Q304	E-12	D381 C-11
Q306	D-12	D401 B-1
Q308	D-11	D403 B-1
Q309	D-10	D405 B-2
Q311	D-10	D406 B-3
Q312	D-2	D407 B-3
Q401	C-3	D571 C-12
Q402	D-3	D681 F-11
Q403	C-4	D682 F-11
Q404	C-11	

- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

A BOARD IC301 TDA9145



A BOARD IC304 CXA1587S





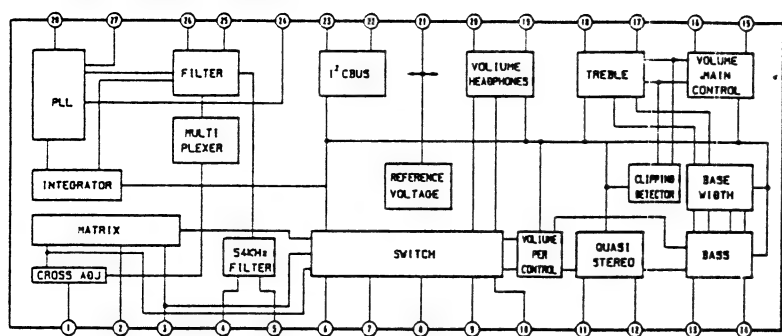




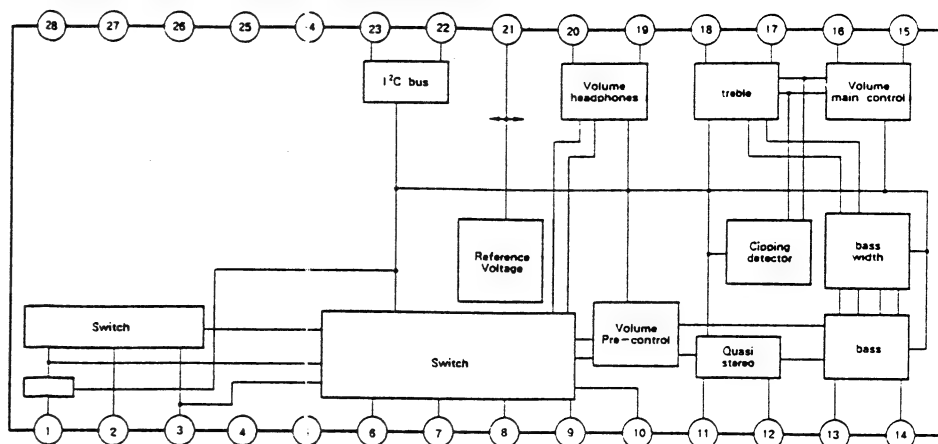




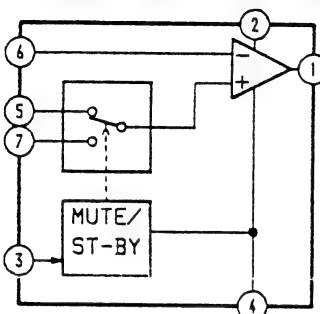
A BOARD IC201 TDA6612



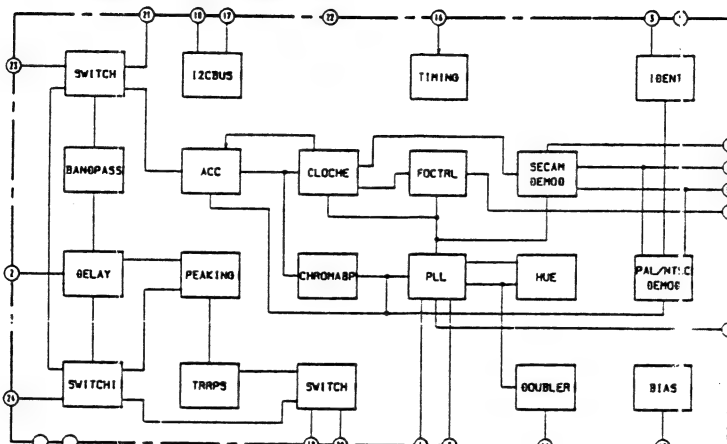
A BOARD IC201 TDA6622 (UK Model only)



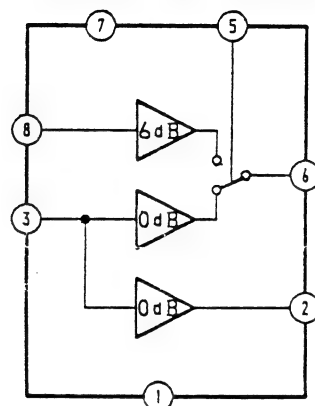
A BOARD IC251, IC261 TDA2052



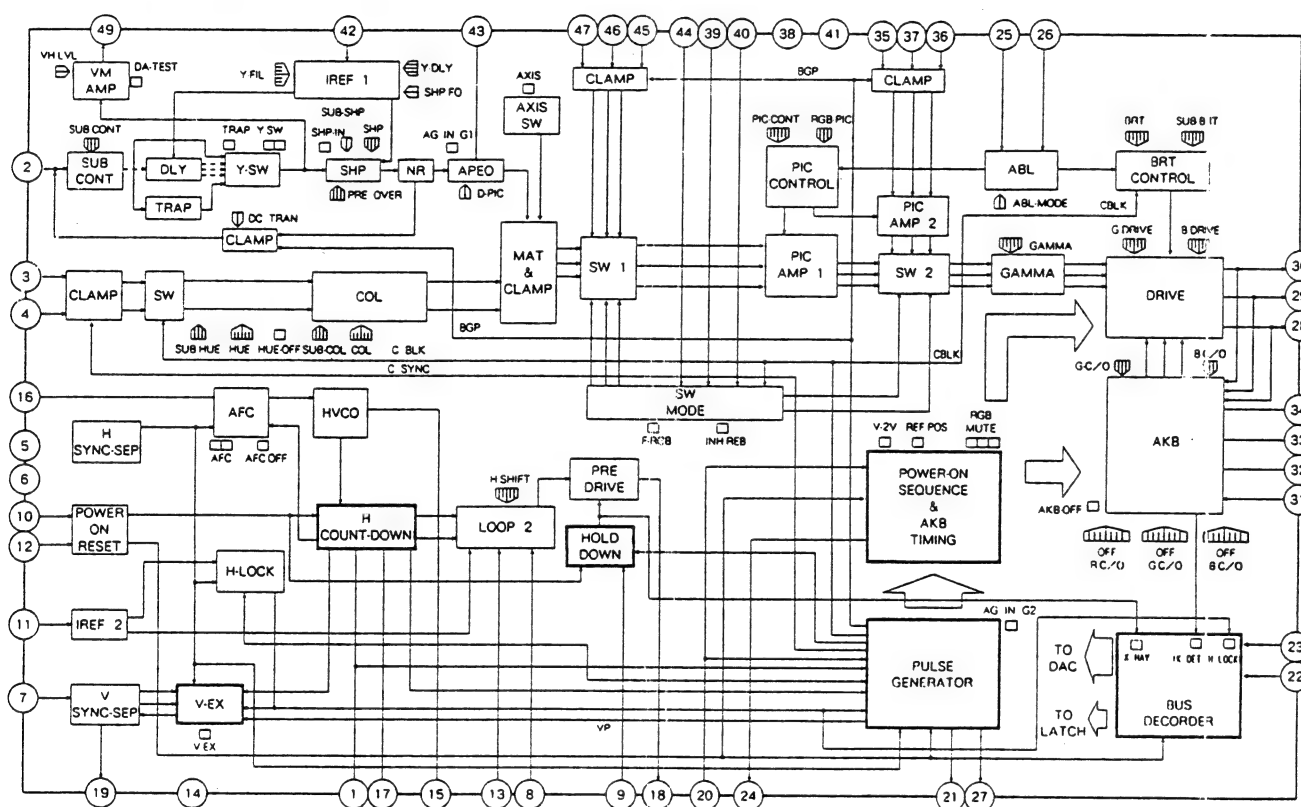
A BOARD IC301 TDA9145



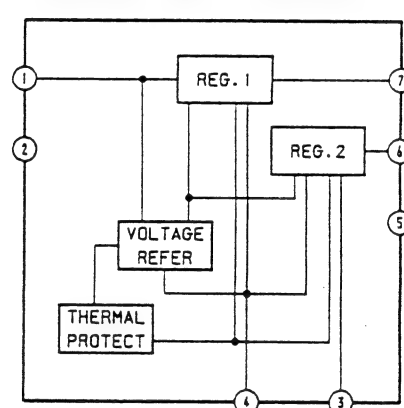
A BOARD IC402 TEA2114















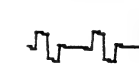
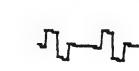
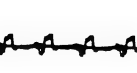
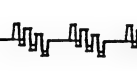
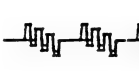
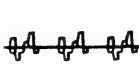





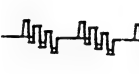
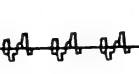
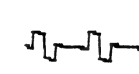
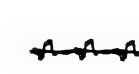




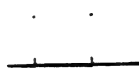



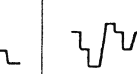
A BOARD IC304 CXA1587S



A BOARD IC681 TDA8138A



A BOARD

① PAL  1.1 Vp-p ( H )	② SECAM  1.2 Vp-p ( H )	① NTSC  1.4 Vp-p ( H )	② PAL  1.9 Vp-p ( H )	② SECAM  1.3 Vp-p ( H )	② NTSC  1.8 Vp-p ( H )	③ PAL  2.3 Vp-p ( H )
③ SECAM  2.2 Vp-p ( H )	③ NTSC  2.7 Vp-p ( H )	④ PAL  2.3 Vp-p ( H )	④ SECAM  2.4 Vp-p ( H )	④ NTSC  2.8 Vp-p ( H )	⑤ PAL  0.6 Vp-p ( H )	⑤ SECAM  1.2 Vp-p ( H )
⑤ NTSC  0.5 Vp-p ( H )	⑥ PAL  0.8 Vp-p ( H )	⑥ SECAM  1.5 Vp-p ( H )	⑥ NTSC  0.7 Vp-p ( H )	⑦ PAL, SECAM  0.5 Vp-p ( H )	⑦ NTSC  0.6 Vp-p ( H )	⑤ PAL  0.5 Vp-p ( H )
③ SECAM  0.4 Vp-p ( H )	③ NTSC  0.6 Vp-p ( H )	⑨ PAL, SECAM  1.5 Vp-p ( H )	⑩ NTSC  1.5 Vp-p ( H )	⑩ PAL, SECAM  1.2 Vp-p ( H )	⑩ NTSC  1.0 Vp-p ( H )	⑪  5.2 Vp-p ( H )
⑬  0.12 Vp-p (540KHZ)	⑭  4.7 Vp-p ( H )	⑮  3.8 Vp-p ( H )	⑯  5.0 Vp-p ( H )	⑰  8.9 Vp-p ( H )	⑱  3.3 Vp-p ( H )	⑲  3.6 Vp-p ( H )
						⑳  4.1 Vp-p ( H )

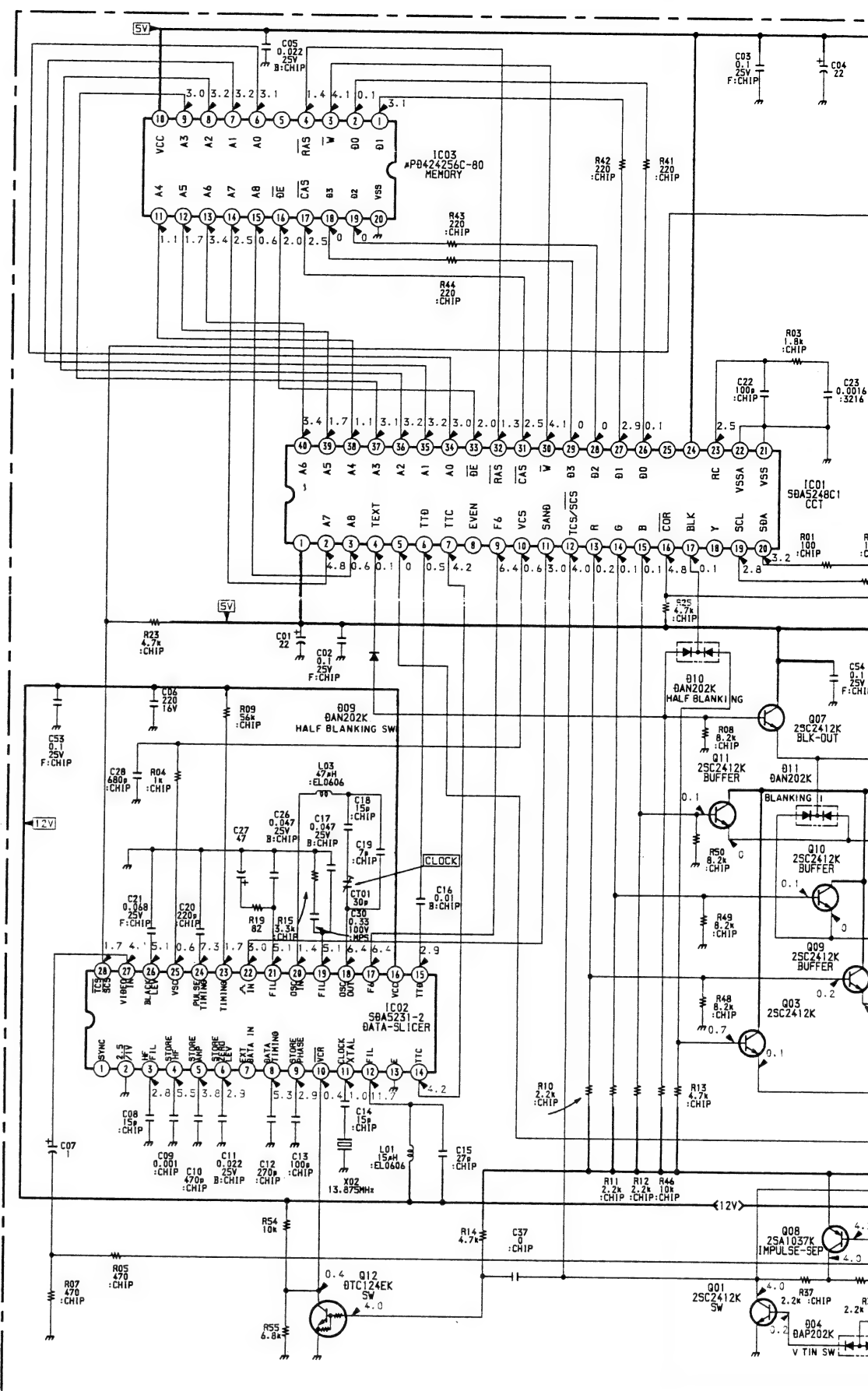
Schematic diagram

← A board

Schematic diagram

D5 M1 board →

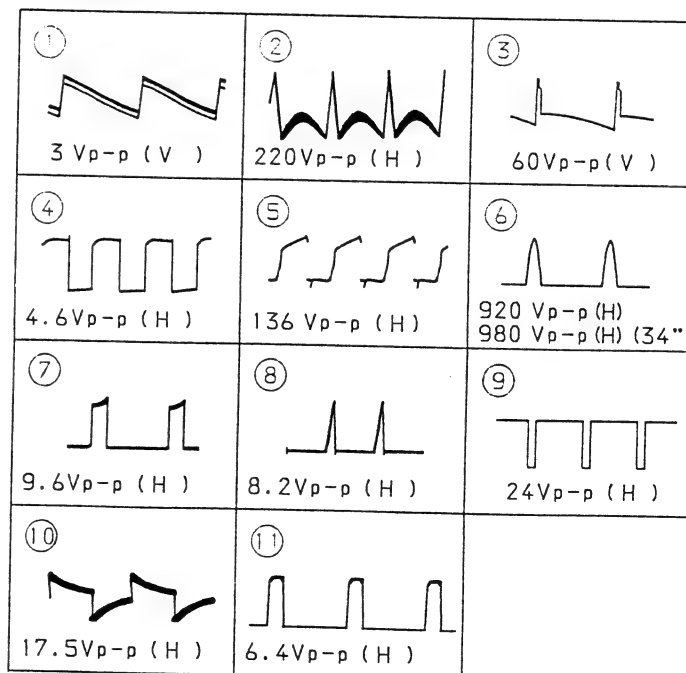




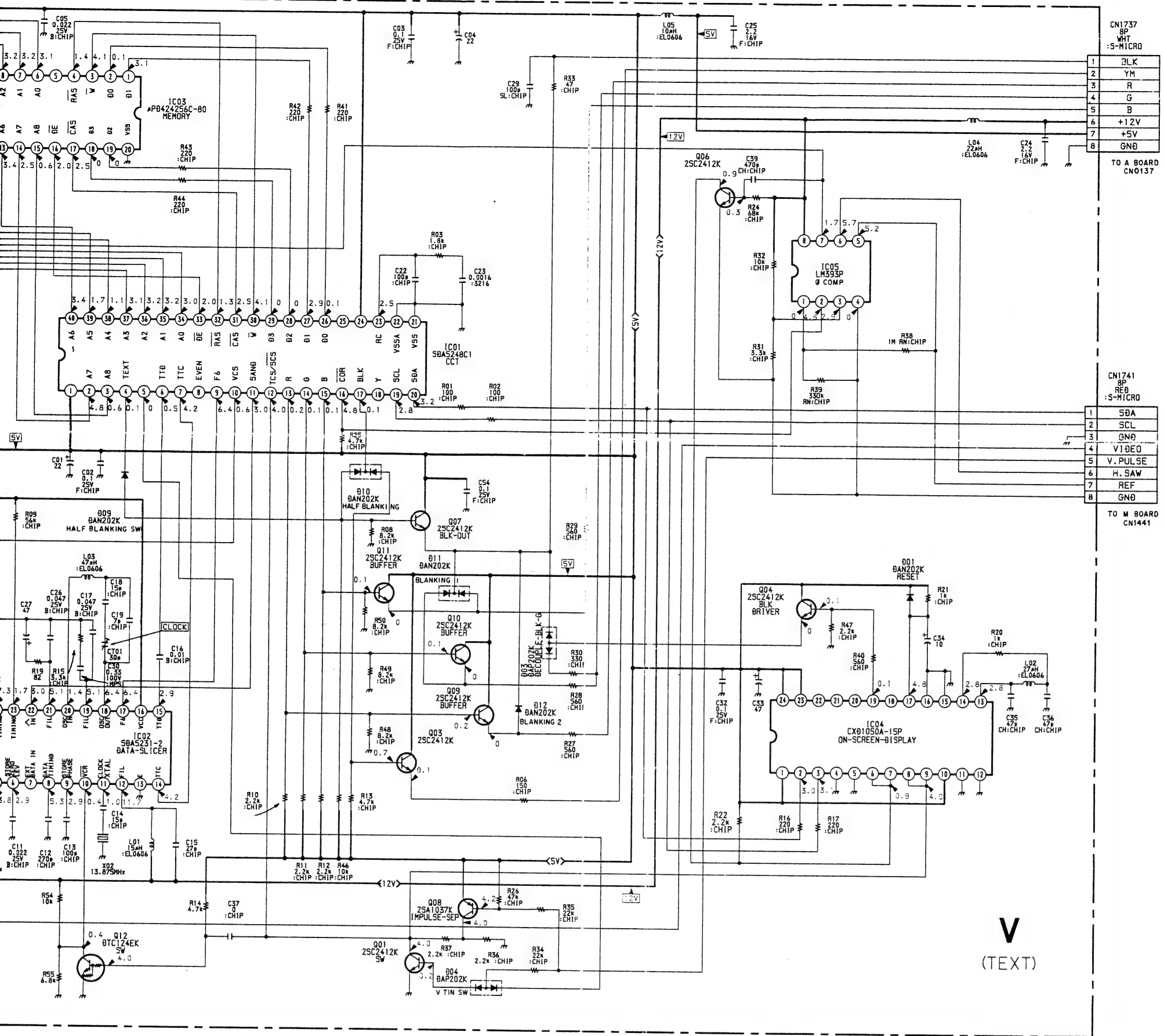
D BOARD : \* MARK

	KV-E2531D KV-E2531B	KV-E2931D KV-E2931B	KV-E3431D KV-E3431B
C603	0.0022 400V	0.0022 400V	—
C612	0.0056 50V	0.0068 63V	0.0068 63V
Δ C821	0.021 1.2KV	0.021 1.2KV	1.2KV : PP
C823	0.47 50V	0.47 50V	1 50V
C824	0.0047 63V	0.0022 63V	0.0022 63V
Δ C826	0.068 630V	0.068 630V	0.056 630V
C827	0.047 100V	0.1 100V : MPS	0.1 63V
C833	1.8 200V	2 200V	1.8 200V
C834	0.62 200V	0.82 200V	1.2 200V
C851	0.0047 400V	0.001 63V	0.001 63V
Δ C854	330P 2KV B	560P 2KV A	330P 2KV B
C863	0.047 100V	0.047 100V	—
C866	0.001 400V	—	—
C869	0.1 100V	0.1 100V : MPS	0.1 63V
C1507	0.22 100V : MPS	0.27 100V : MPS	0.27 100V : MPS
C1513	—	—	68P 50V
CN0522	—	—	9P
D811	—	—	ERB44-06
JW304	20MM JW	—	—
JW305	20MM JW	—	—
L802	—	—	2.2MMH :ELO606
L817	HLC	HLC	HLT
R601	8.2 1W : RS	2.2 1W : FS	2.2 1W : RS
R630	2.2K 1/4W	2.2 1/4W	—
R801	6.8K : CHIP	1.5K : C-IP	1.5K : CHIP
R821	1.5K 3W : RS	1.2K 3W : FS	1.2K 3W : RS
R822	1.5K 3W : RS	1.2K 3W : FS	1.2K 3W : RS
R825	0.47 1W : RS	0.47 1W : FS	0.27 1W : RS
R834	330K : CHIP	150K : C-IP	180K : CHIP
R838	56K : CHIP	68K : C-IP	100K : CHIP
R839	1.8K : CHIP	3.6K : C-IP	3.6K : CHIP
R845	—	—	270K : CHIP
R847	100K : CHIP	82K : C-IP	150K : CHIP
R849	33 3W : RS	15 2W : RS	15 2W : RS
R864	30K : RN-CP	15K : RN-CP	150K : RN-CP
R868	33K 1/4W	15K 1/4W	8.2K 1/4W
R1502	3.9K	3.6K	3.6K
R1509	56K	47K	47K
Δ T601 (SMT7)	: RST	(SMT89) : R:T	(SMT89) : RST
Δ T801 UX-2600A2	UX-2600A2	UX-2600A2	UX-2602A3
T895	—	—	DFT

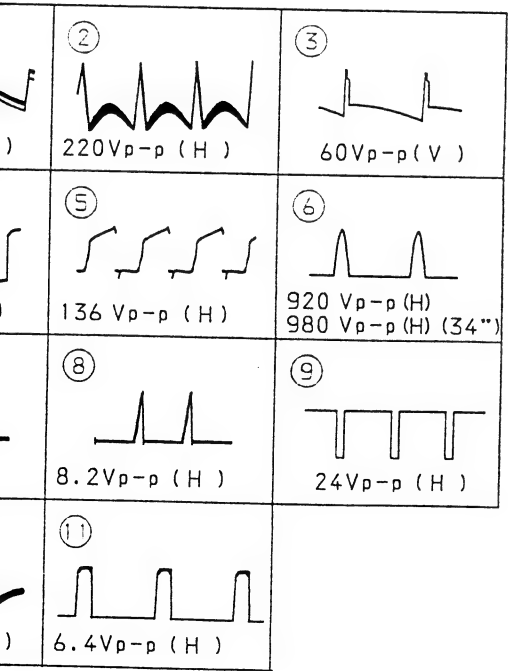
— D Board —







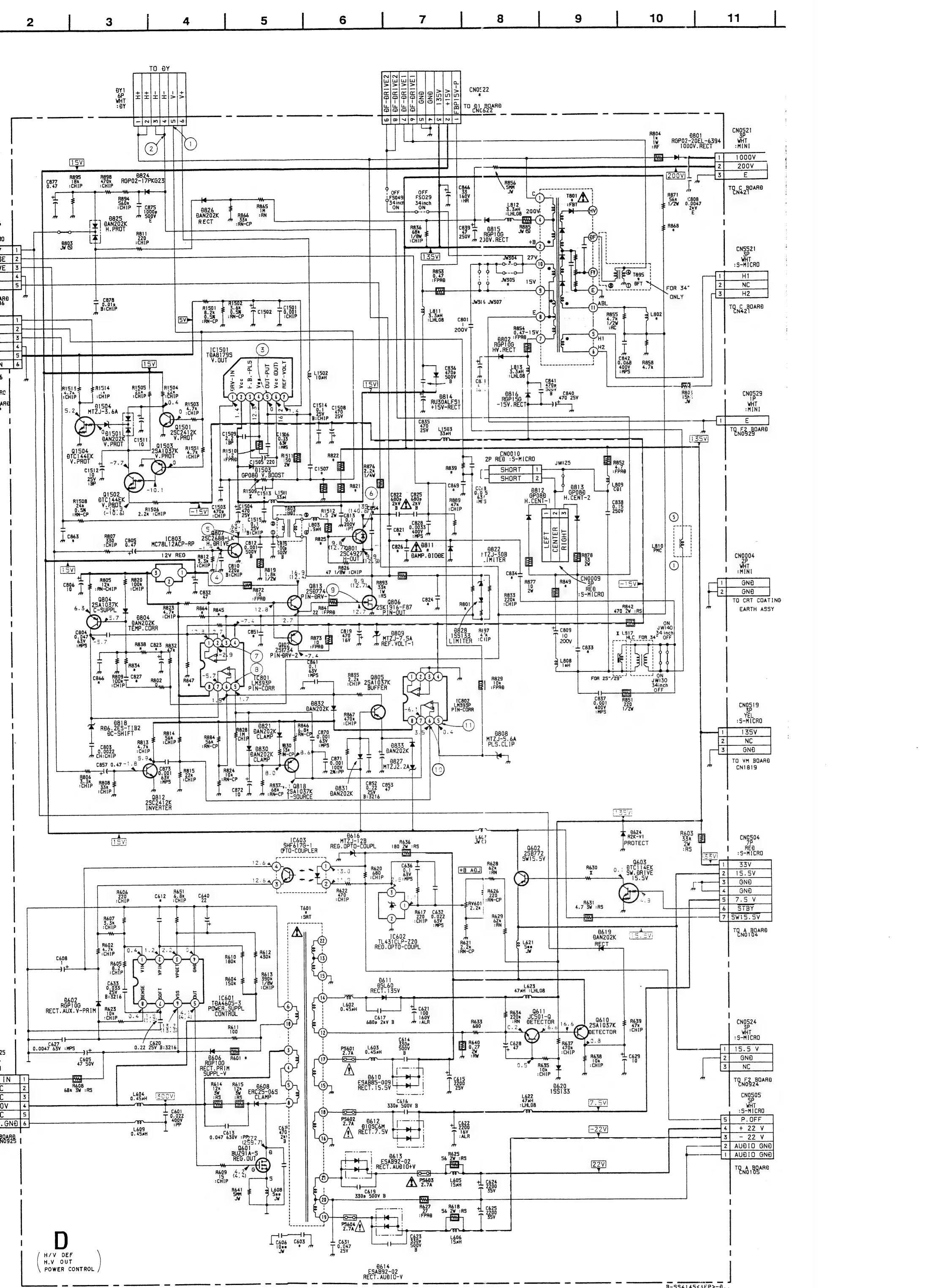
B-SS4178(AEP)-V..



















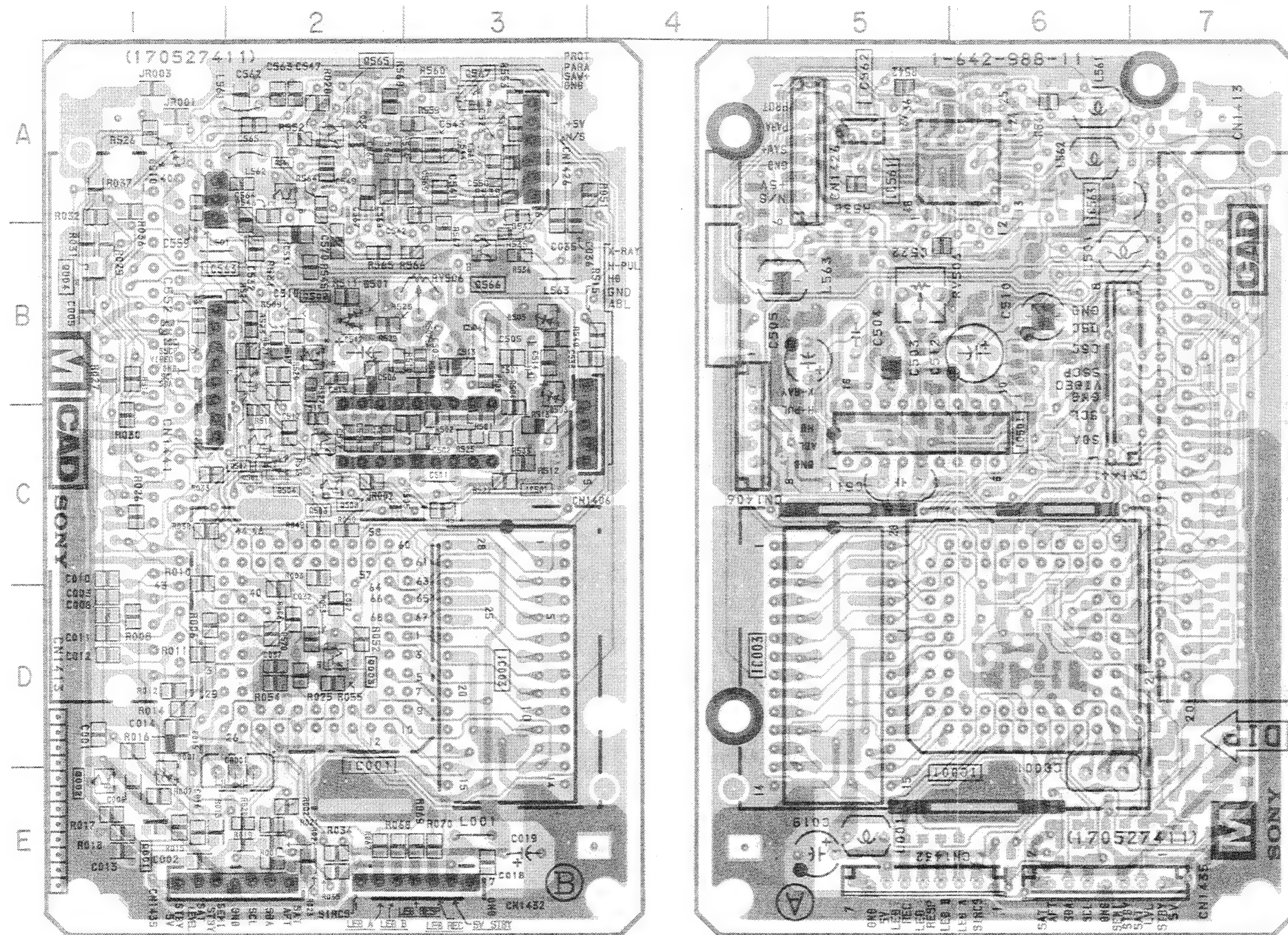


**M** MICRO CONTROL, SOFTWARE EPROM,  
GEOMETRIE CONTROL, JUNGLE, H. DRIVE

— M Board —

KV-E2531D/E2931D/E3431D  
KV-E2531B/E2931B/E3431B  
RM-830 RM-830 RM-832

KV-E2531D/E2931D/E3431D  
KV-E2531B/E2931B/E3431B  
RM-830 RM-830 RM-832

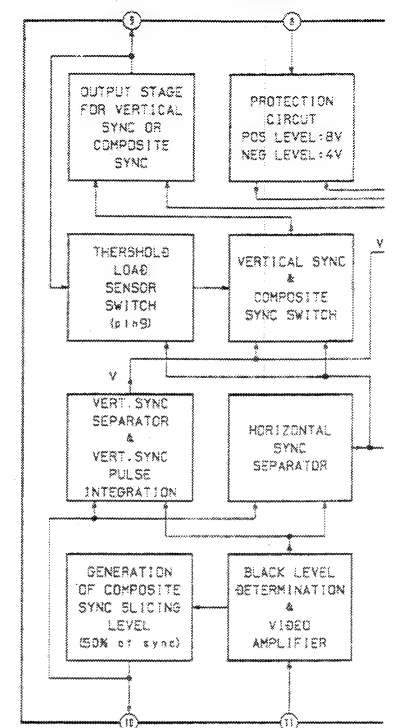


- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

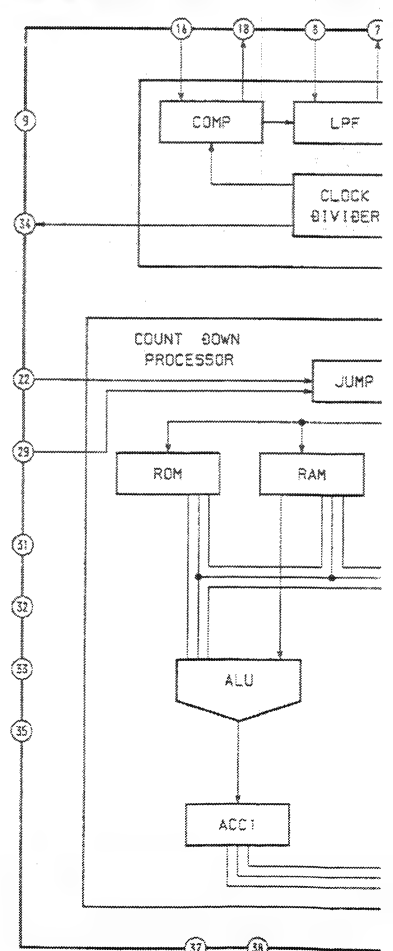
— M Board —

IC	
IC001	D-2
IC003	D-3
IC501	C-3
IC561	A-6
IC562	A-5
IC563	B-1
TRANSISTOR	
Q002	E-1
Q003	D-2
Q501	C-2
Q502	B-2
Q503	C-2
Q508	C-2
Q509	B-2
Q564	A-2
Q565	A-2
Q566	B-3
Q567	A-3
DIODE	
D001	E-1
D501	B-2
D503	B-3
D504	C-2
D505	B-3
D510	A-1
VARIABLE RESISTOR	
RV506	B-3

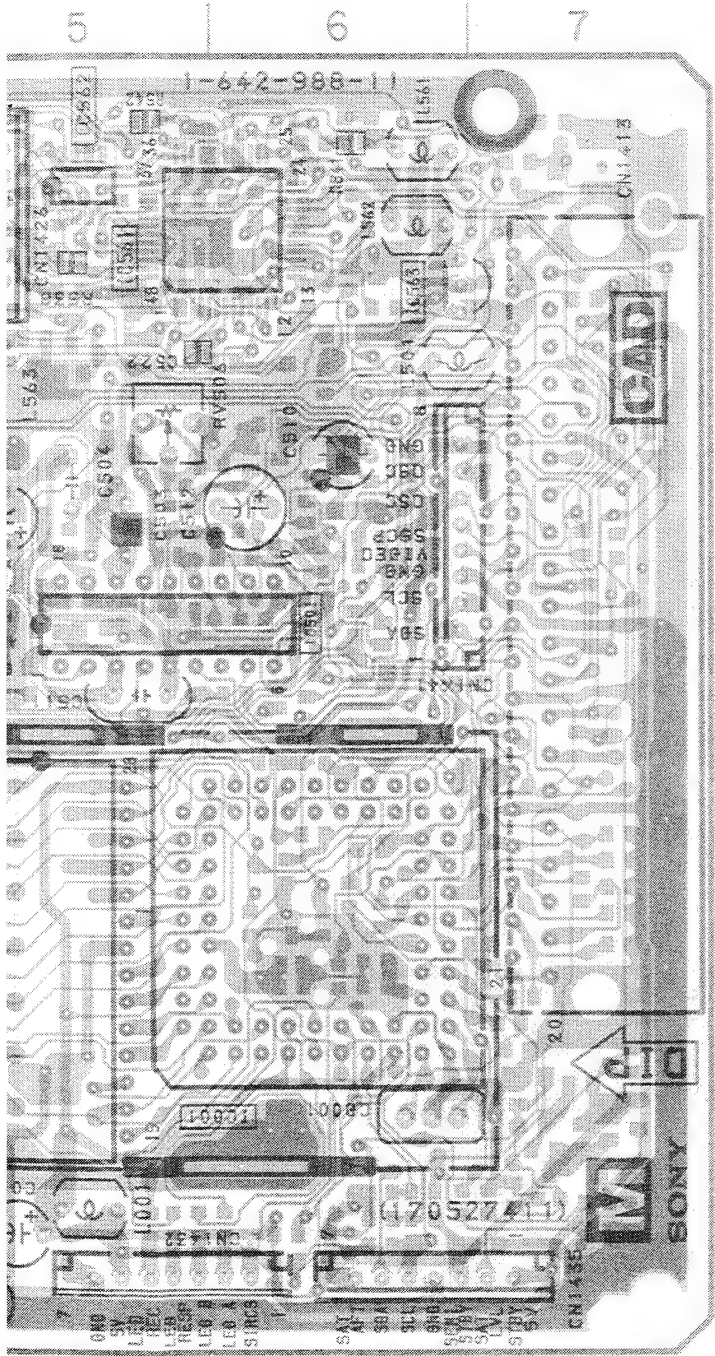
M BOARD IC501 TDA2595/ V5



M BOARD IC561 CXD2018Q



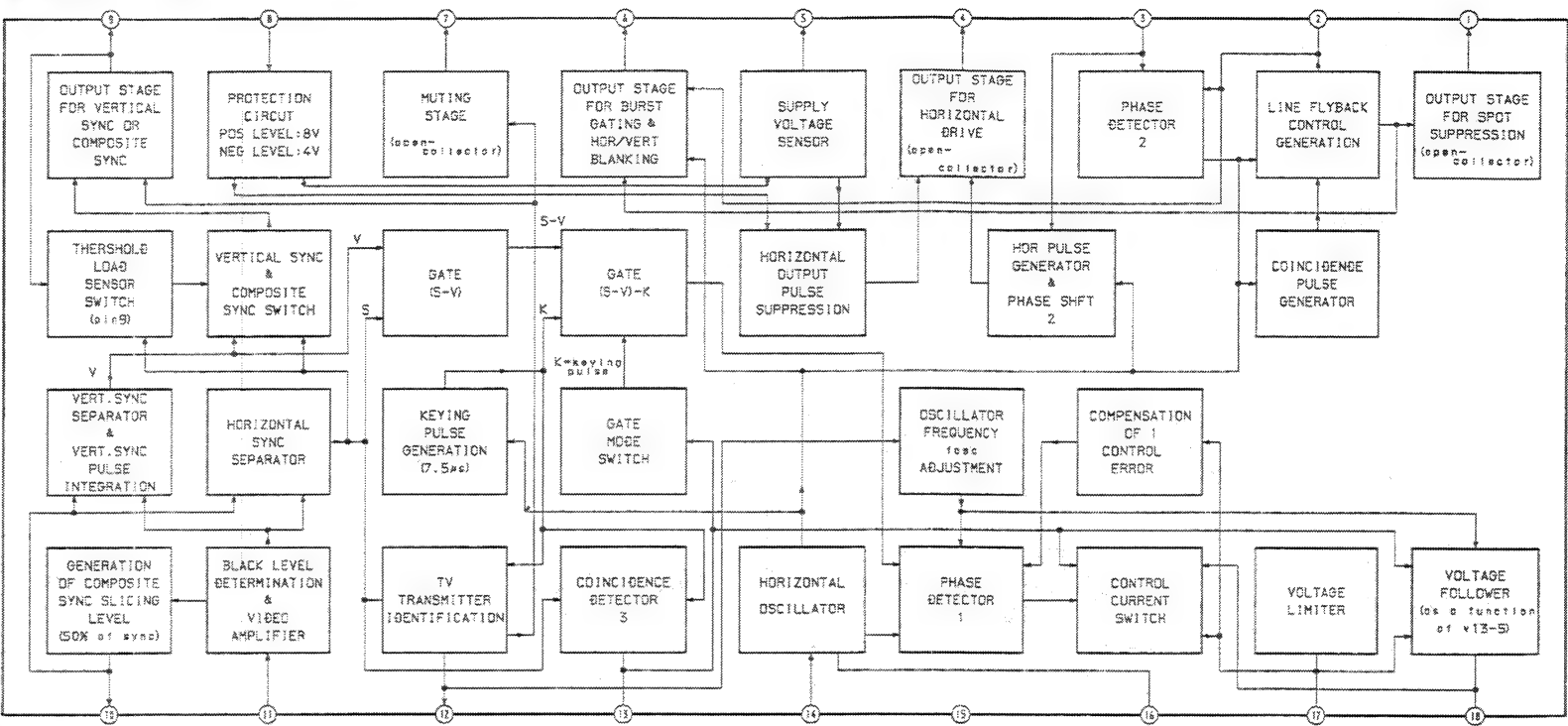




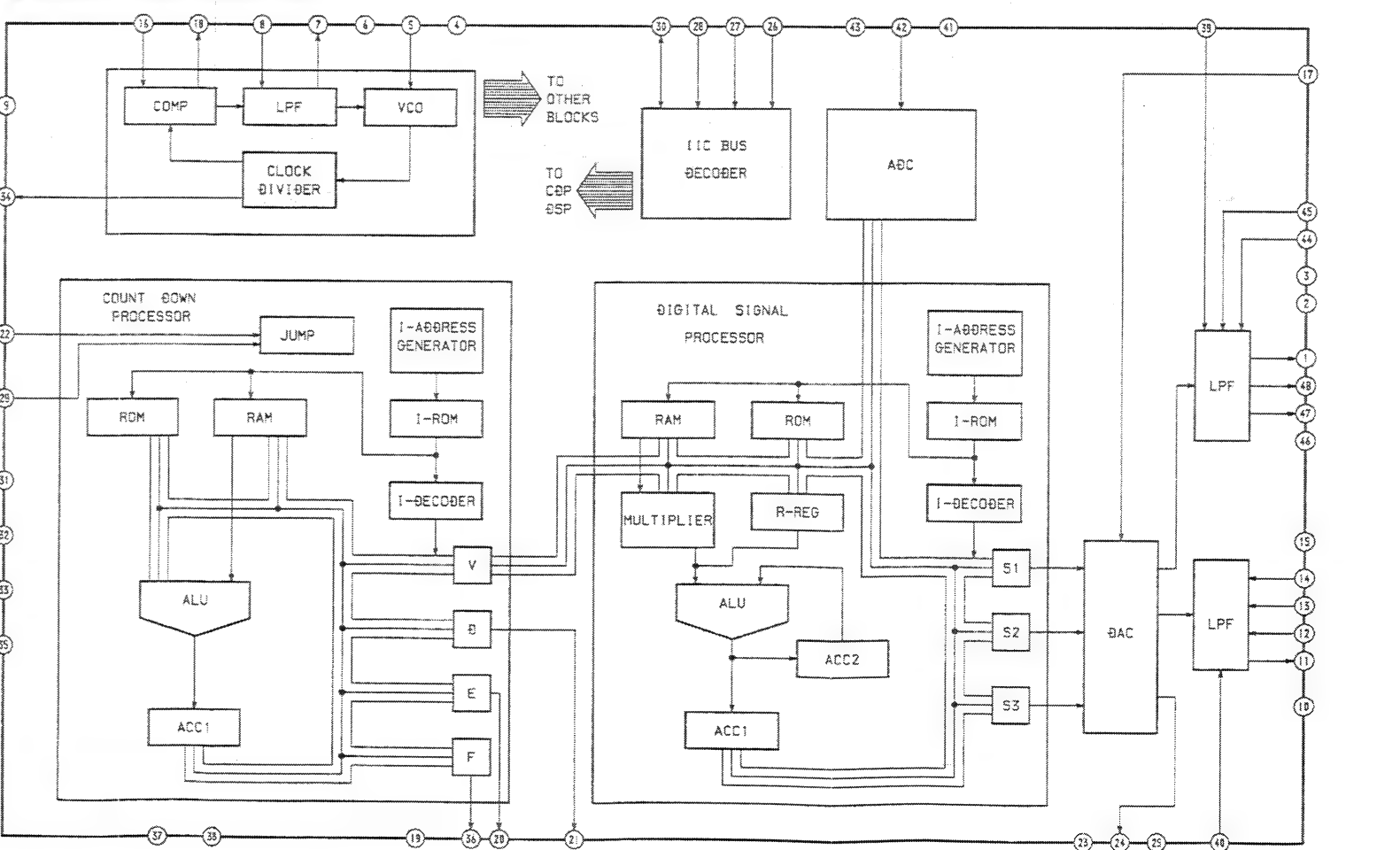
— M Board —

IC	
IC001	D-2
IC003	D-3
IC501	C-3
IC561	A-6
IC562	A-5
IC563	B-1
TRANSISTOR	
Q002	E-1
Q003	D-2
Q501	C-2
Q502	B-2
Q503	C-2
Q508	C-2
Q509	B-2
Q564	A-2
Q565	A-2
Q566	B-3
Q567	A-3
DIODE	
D001	E-1
D501	B-2
D503	B-3
D504	C-2
D505	B-3
D510	A-1
VARIABLE RESISTOR	
RV506	B-3

M BOARD IC501 TDA2595/V9



M BOARD IC561 CXD2018Q



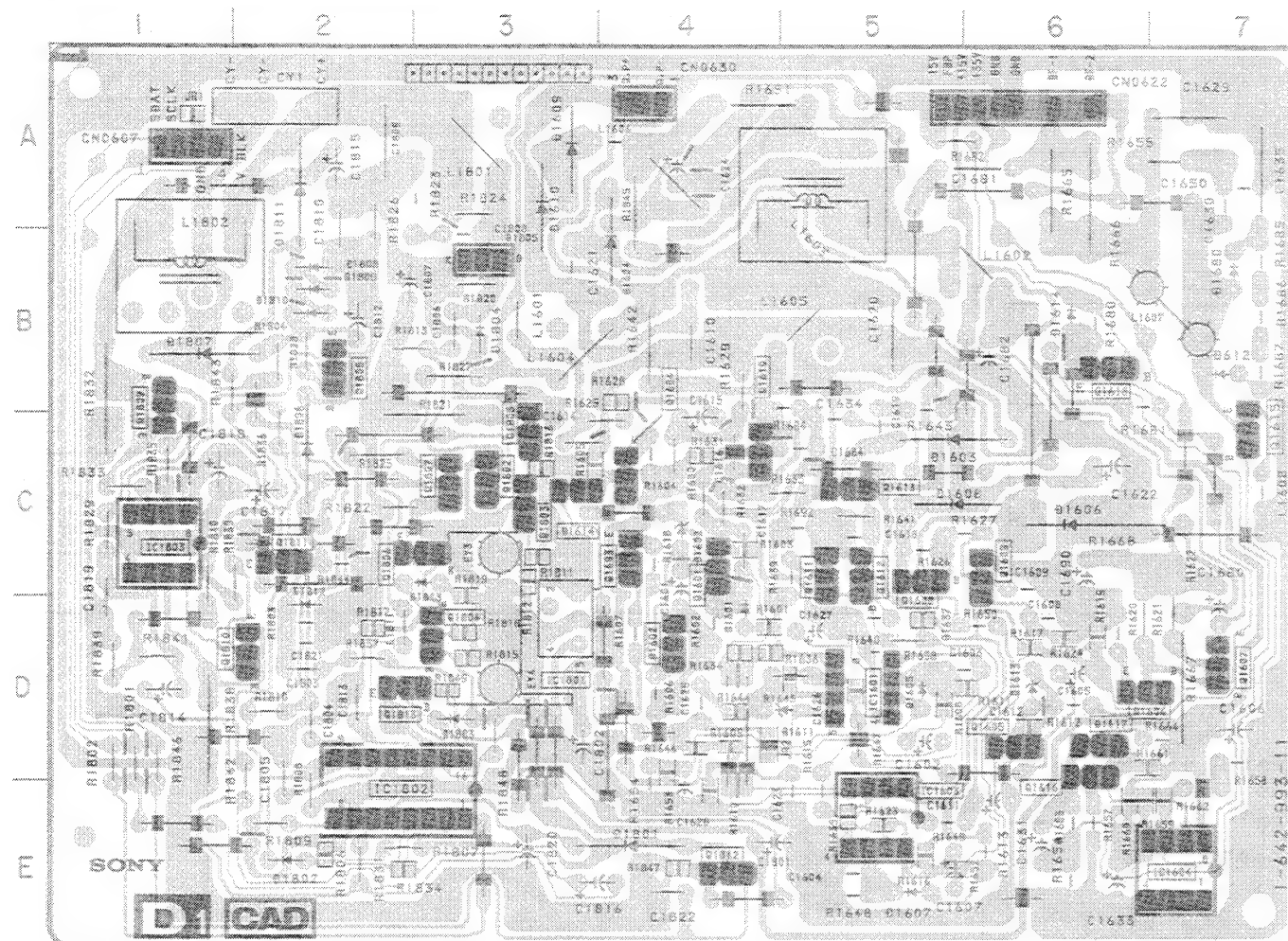
• : Pattern from the side which enables seeing.  
• : Pattern of the rear side.



**D1**

[CONVERGENCE]

— D1 Board — (KV-E3431D, E3431B ONLY)



— D1 Board —

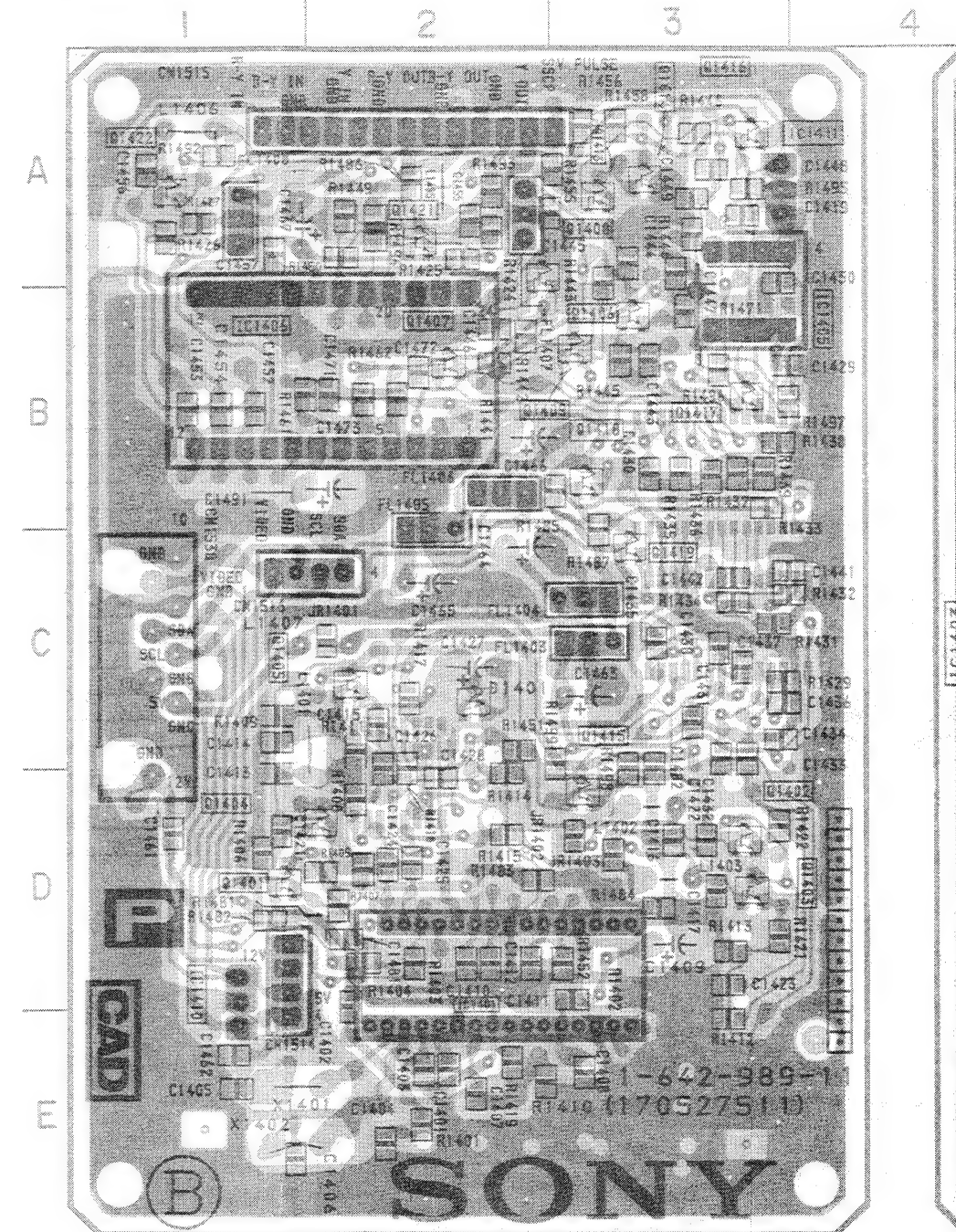
(KV-E3431D, E3431B ONLY)

IC	
IC1603	E-5
IC1801	D-3
IC1802	E-2
IC1803	C-1
TRANSISTOR	
Q1610	C-4
Q1613	C-5
Q1802	C-3
Q1803	C-3
Q1804	D-3
Q1805	C-3
Q1806	C-3
Q1807	C-3
Q1808	B-2
Q1809	B-1
Q1810	D-2
Q1811	C-2
Q1812	E-4
Q1813	D-2
DIODE	
D1603	C-5
D1801	E-4
D1802	E-2
D1803	D-3
D1804	B-3
D1805	B-3
D1806	C-2
D1807	B-1
D1808	B-2
D1809	B-2
D1810	B-2
D1811	A-2
D1812	D-2

**P**

[PICTURE IN PICTURE]

— P Board —

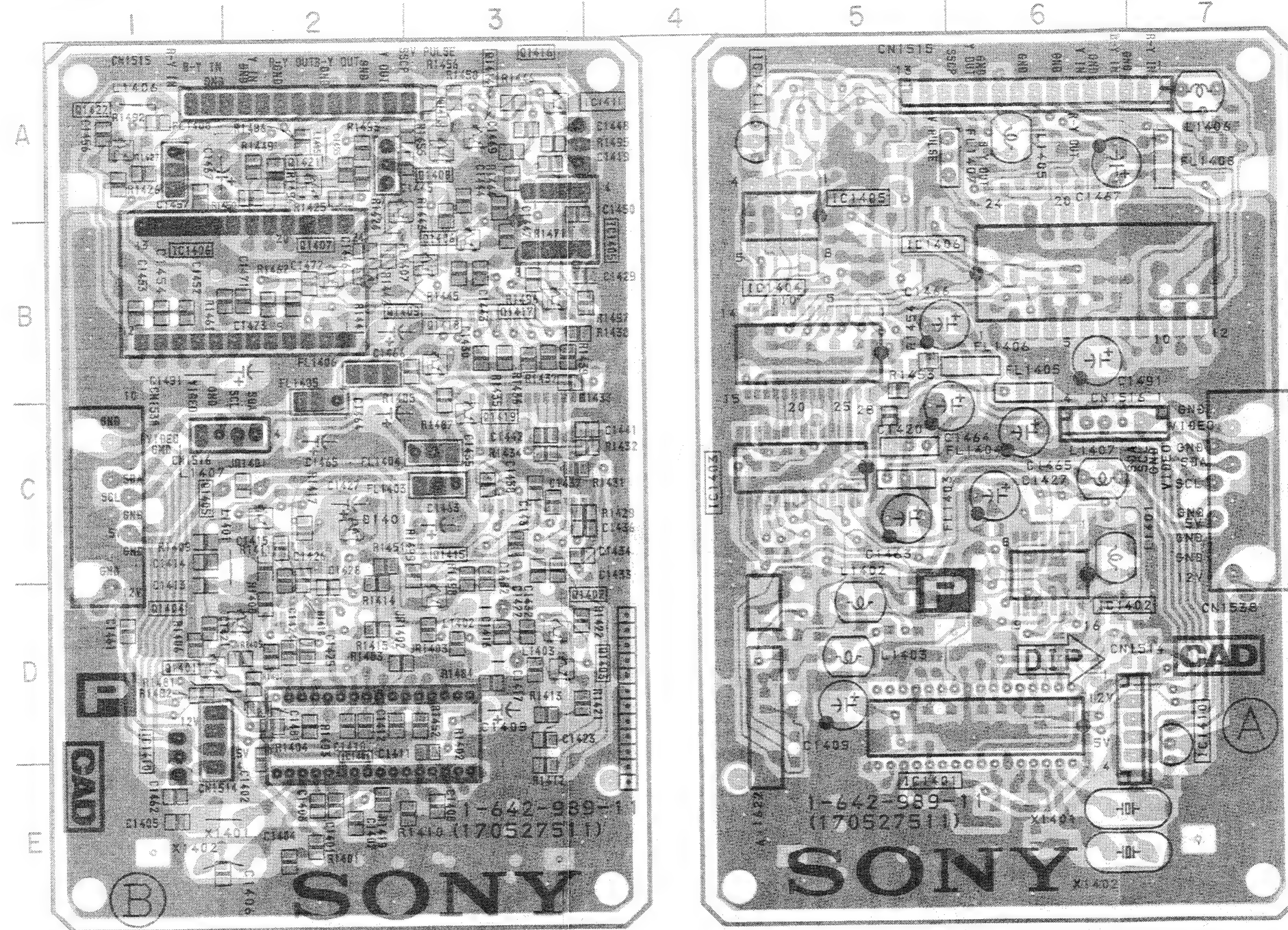




— D1 Board —  
(KV-E3431D, E3431B ONLY)

IC		
IC1603	:	E-5
IC1801	:	D-3
IC1802	:	E-2
IC1803	:	C-1
TRANSISTOR		
Q1610	:	C-4
Q1613	:	C-5
Q1802	:	C-3
Q1803	:	C-3
Q1804	:	D-3
Q1805	:	C-3
Q1806	:	C-3
Q1807	:	C-3
Q1808	:	B-2
Q1809	:	B-1
Q1810	:	D-2
Q1811	:	C-2
Q1812	:	E-4
Q1813	:	D-2
DIODE		
D1603	:	C-5
D1801	:	E-4
D1802	:	E-2
D1803	:	D-3
D1804	:	B-3
D1805	:	B-3
D1806	:	C-2
D1807	:	B-1
D1808	:	B-2
D1809	:	B-2
D1810	:	B-2
D1811	:	A-2
D1812	:	D-2

**P** [PICTURE IN PICTURE]  
— P Board —



— P Board —

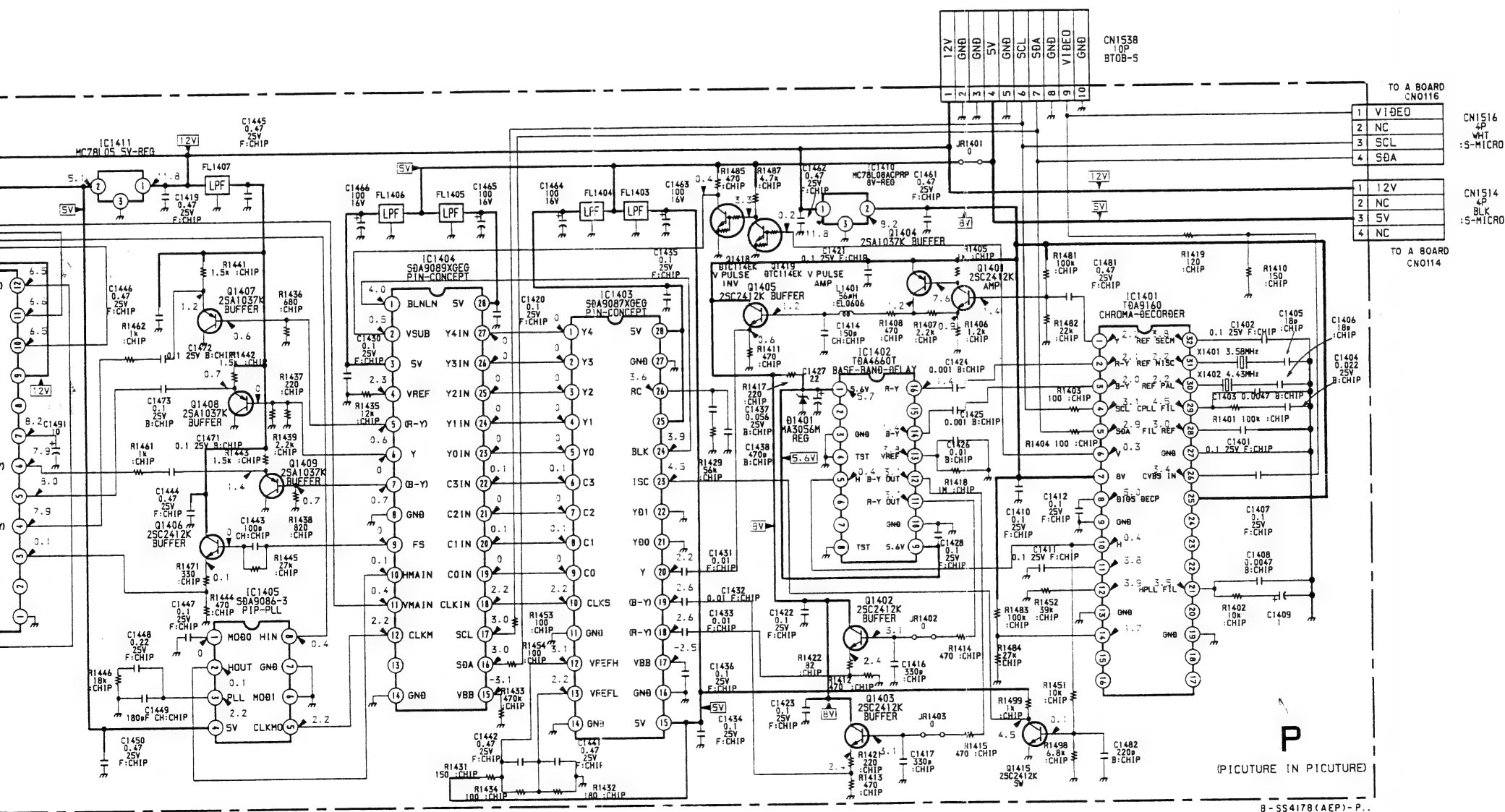
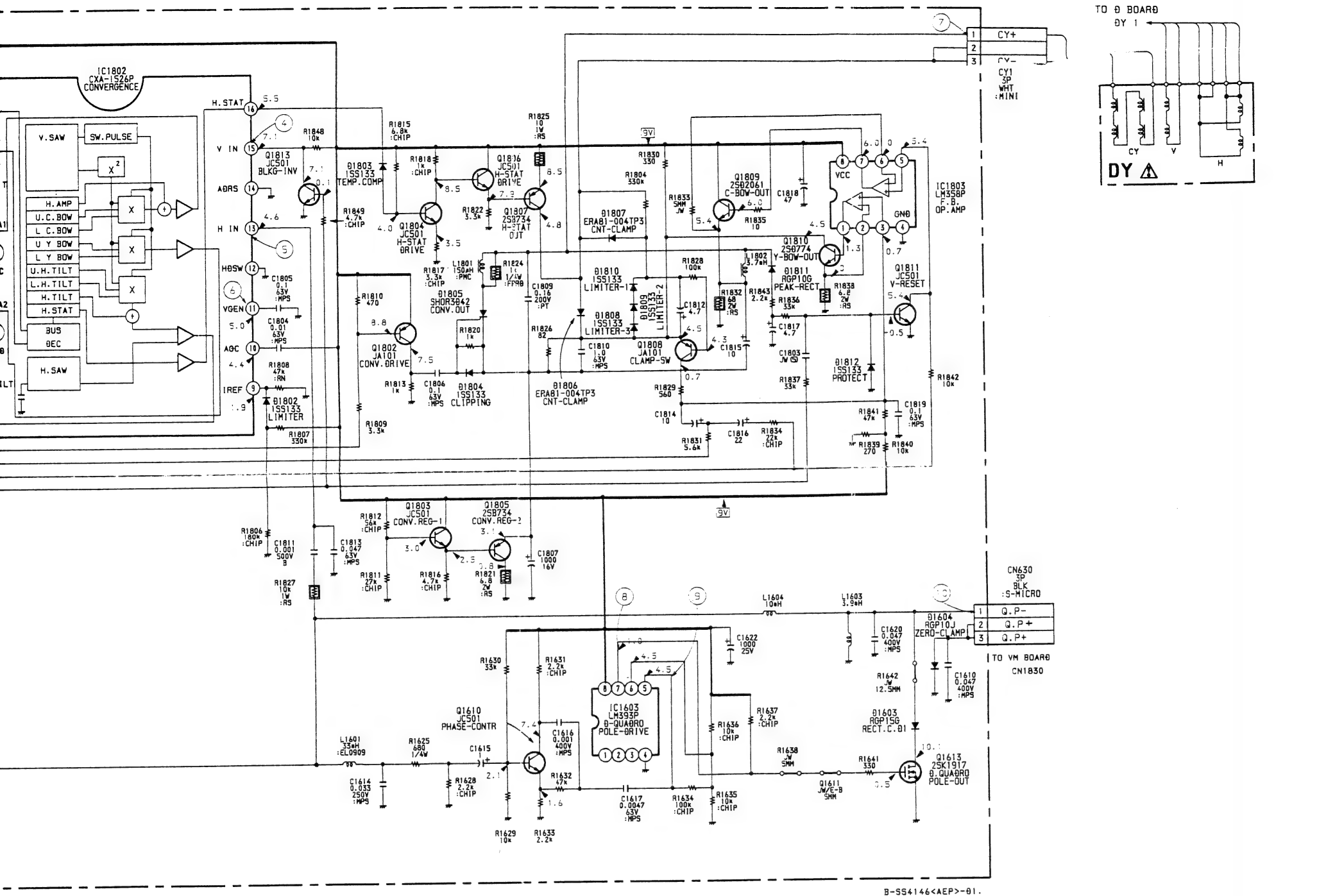
IC		
IC1401	:	D-2
IC1402	:	D-6
IC1403	:	C-5
IC1404	:	B-5
IC1405	:	B-3
IC1406	:	B-2
IC1410	:	D-1
IC1411	:	A-4
TRANSISTOR		
Q1401	:	D-1
Q1402	:	D-3
Q1403	:	D-3
Q1404	:	D-2
Q1405	:	C-2
Q1406	:	B-3
Q1407	:	B-2
Q1408	:	A-2
Q1409	:	B-3
Q1413	:	A-3
Q1414	:	A-3
Q1415	:	D-3
Q1416	:	A-3
Q1417	:	B-3
Q1418	:	B-3
Q1419	:	C-3
Q1421	:	A-2
Q1422	:	A-1
DIODE		
D1401	:	C-2

- Pattern from the side which enables seeing.
- Pattern of the rear side.





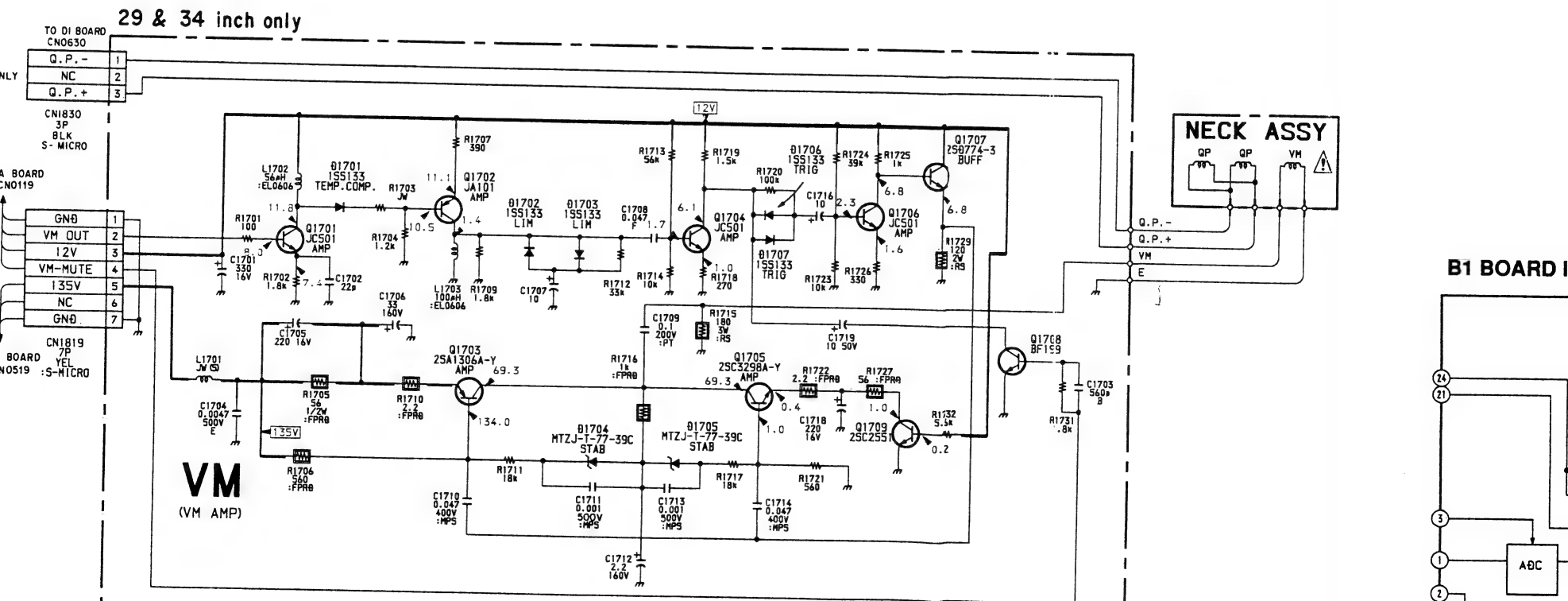




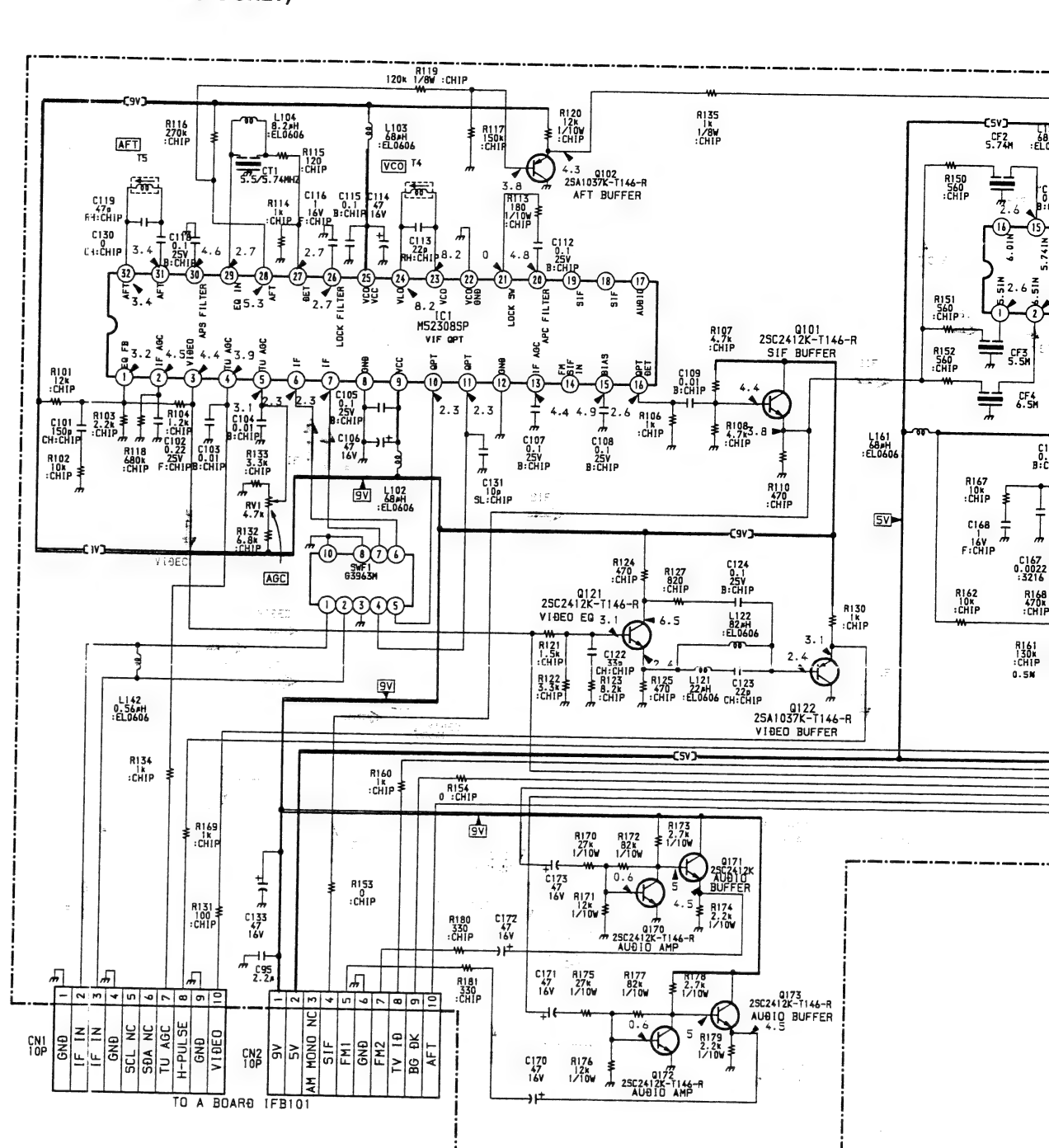
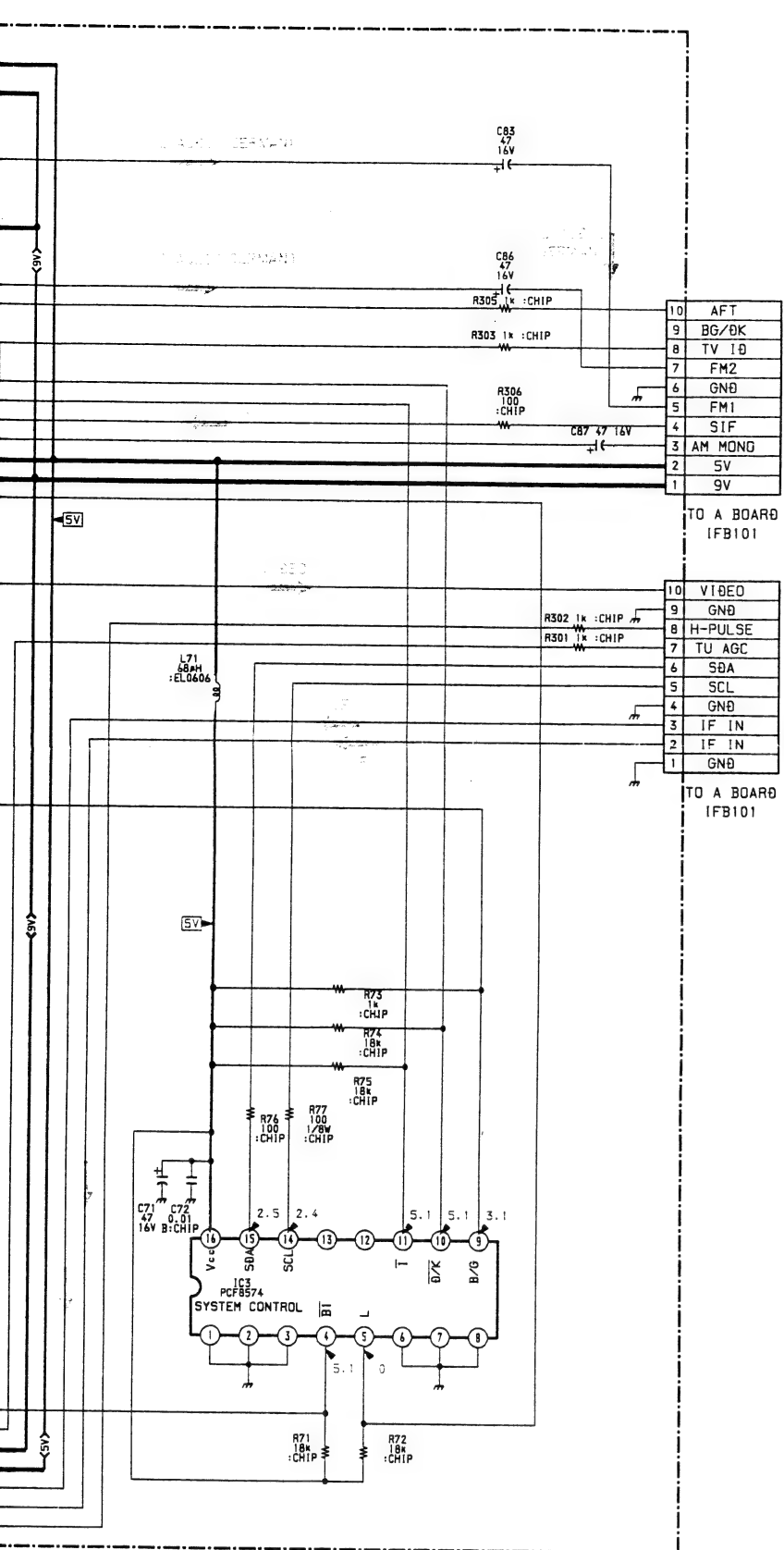




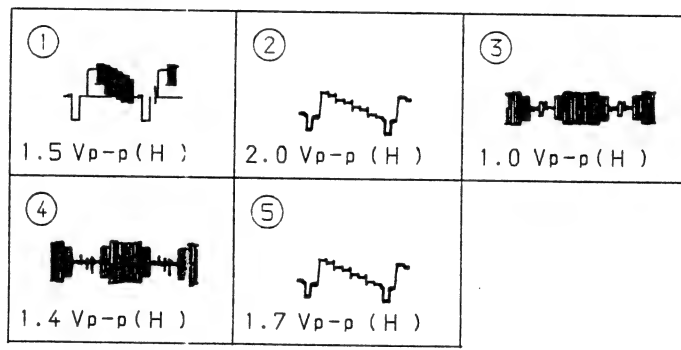




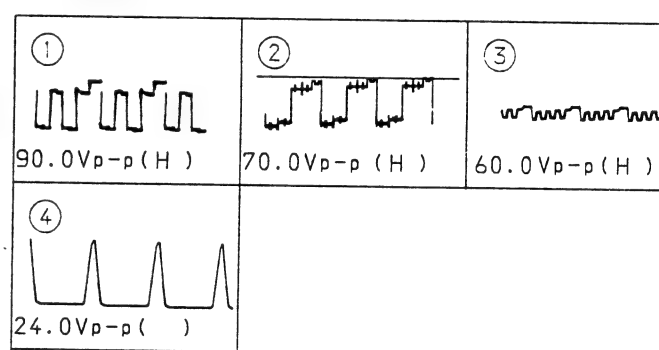




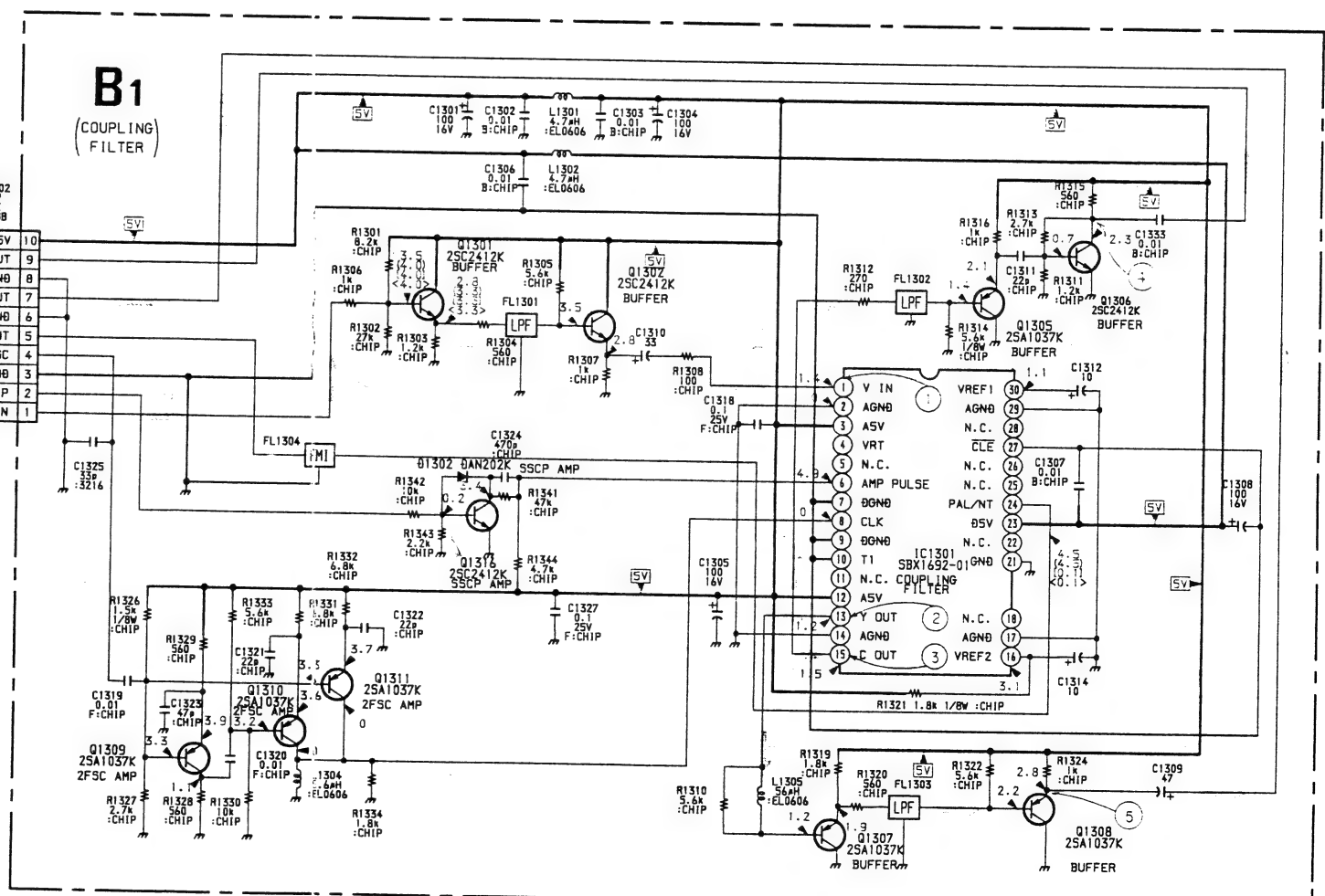
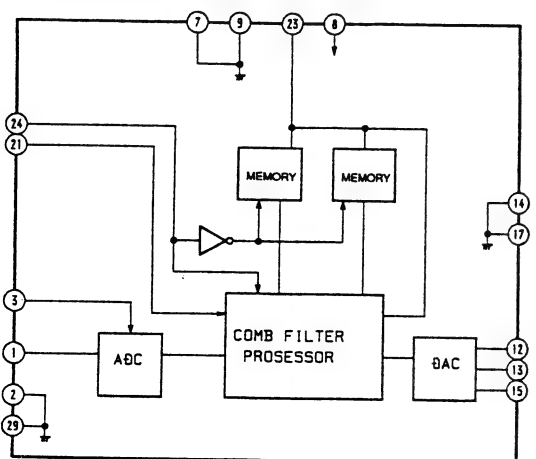
— B1 Board —



— C Board —



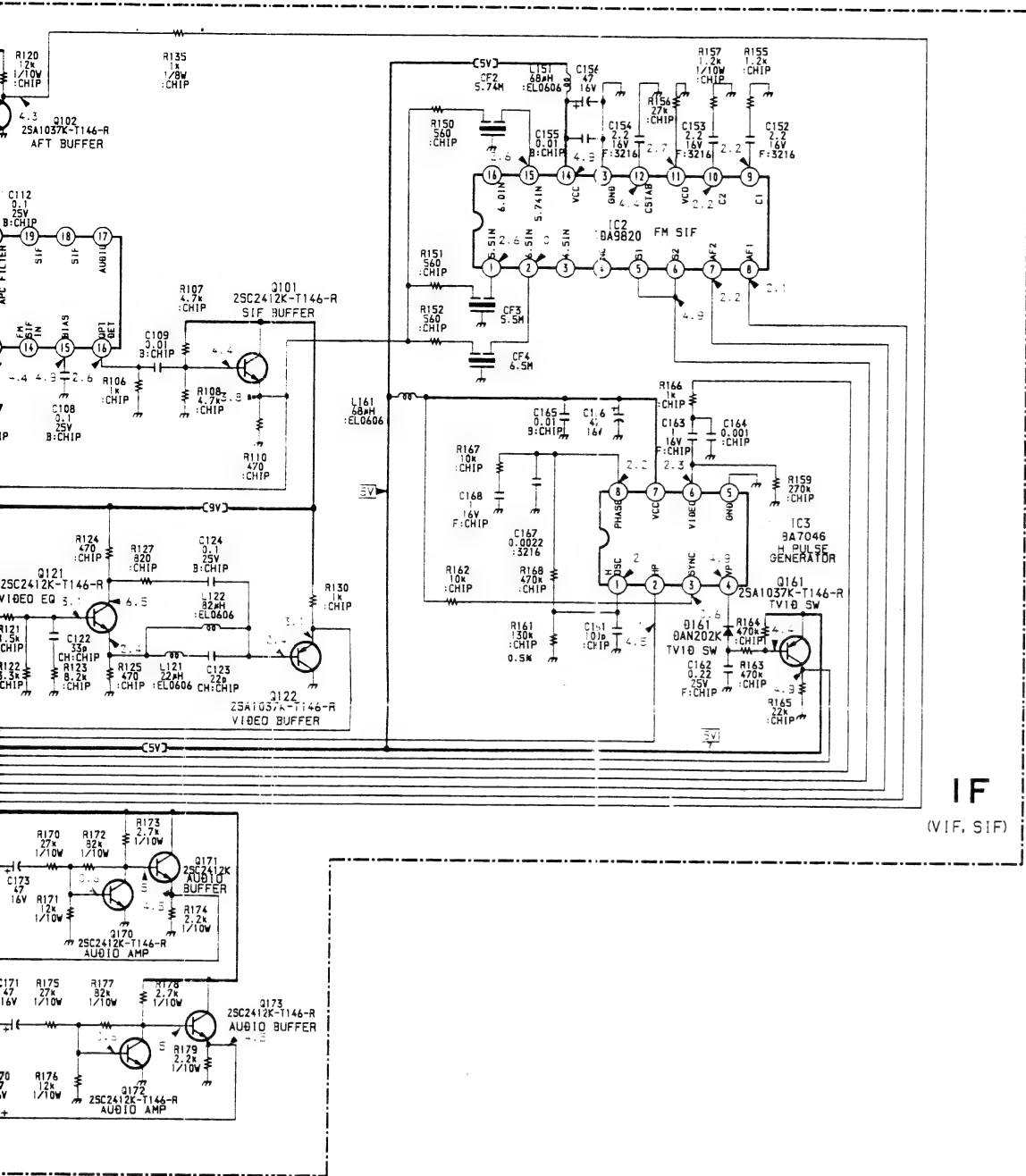
B1 BOARD IC1301 SBX1692-01



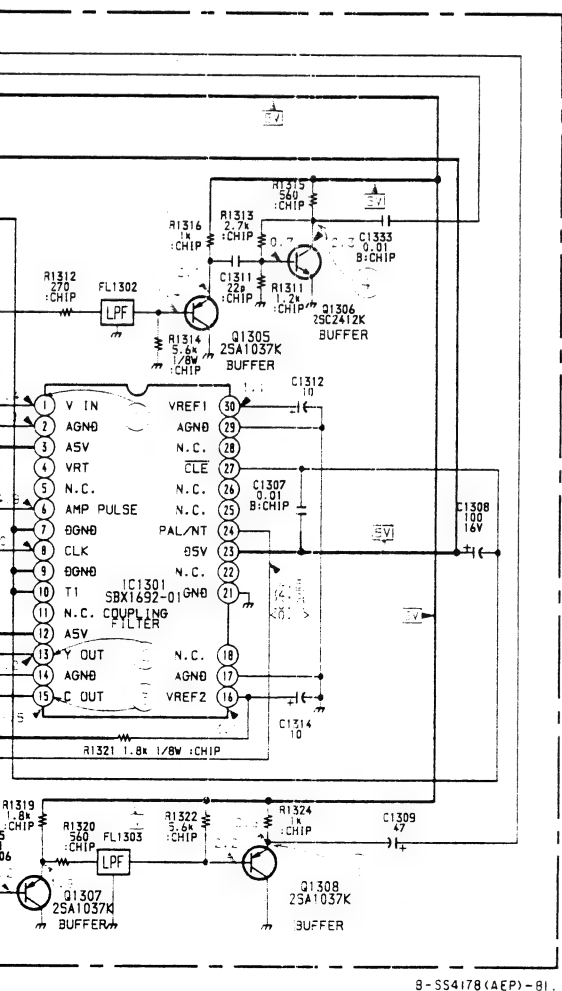
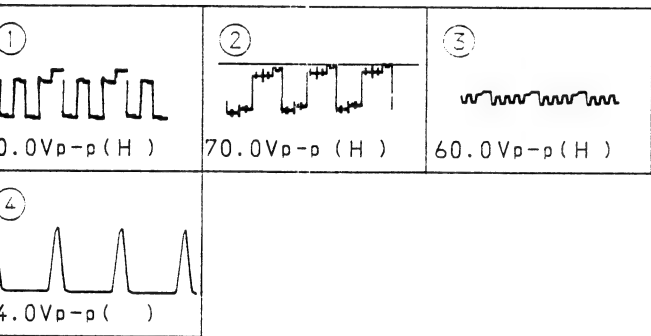






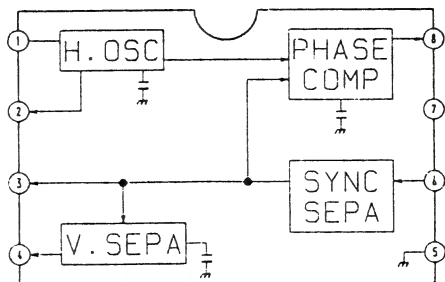


C Board —

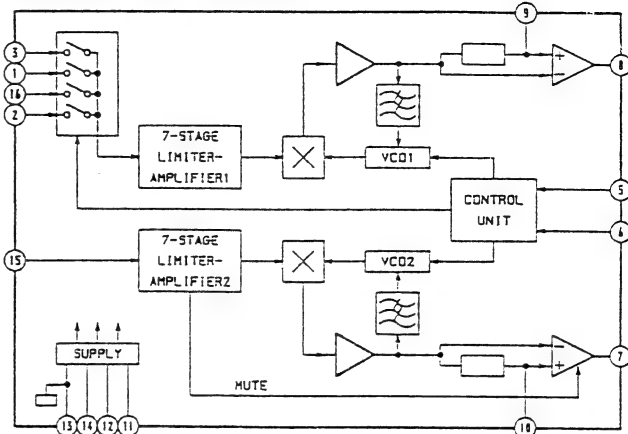


B-SS4178(AEP)-B1.

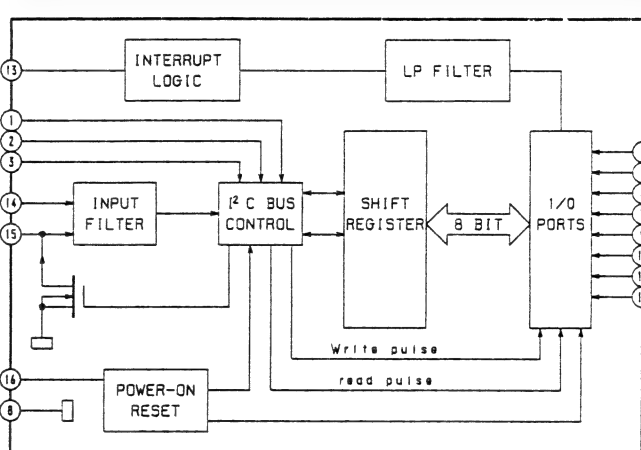
**IF BOARD IC3 BA-7046  
(KV-E2531D/ E2931D/ E3431D)**



**IF BOARD IC2 TDA9820**

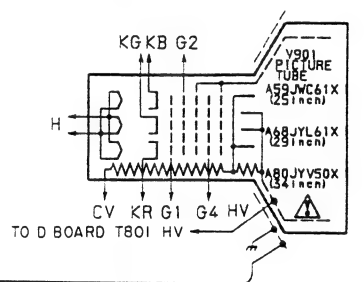
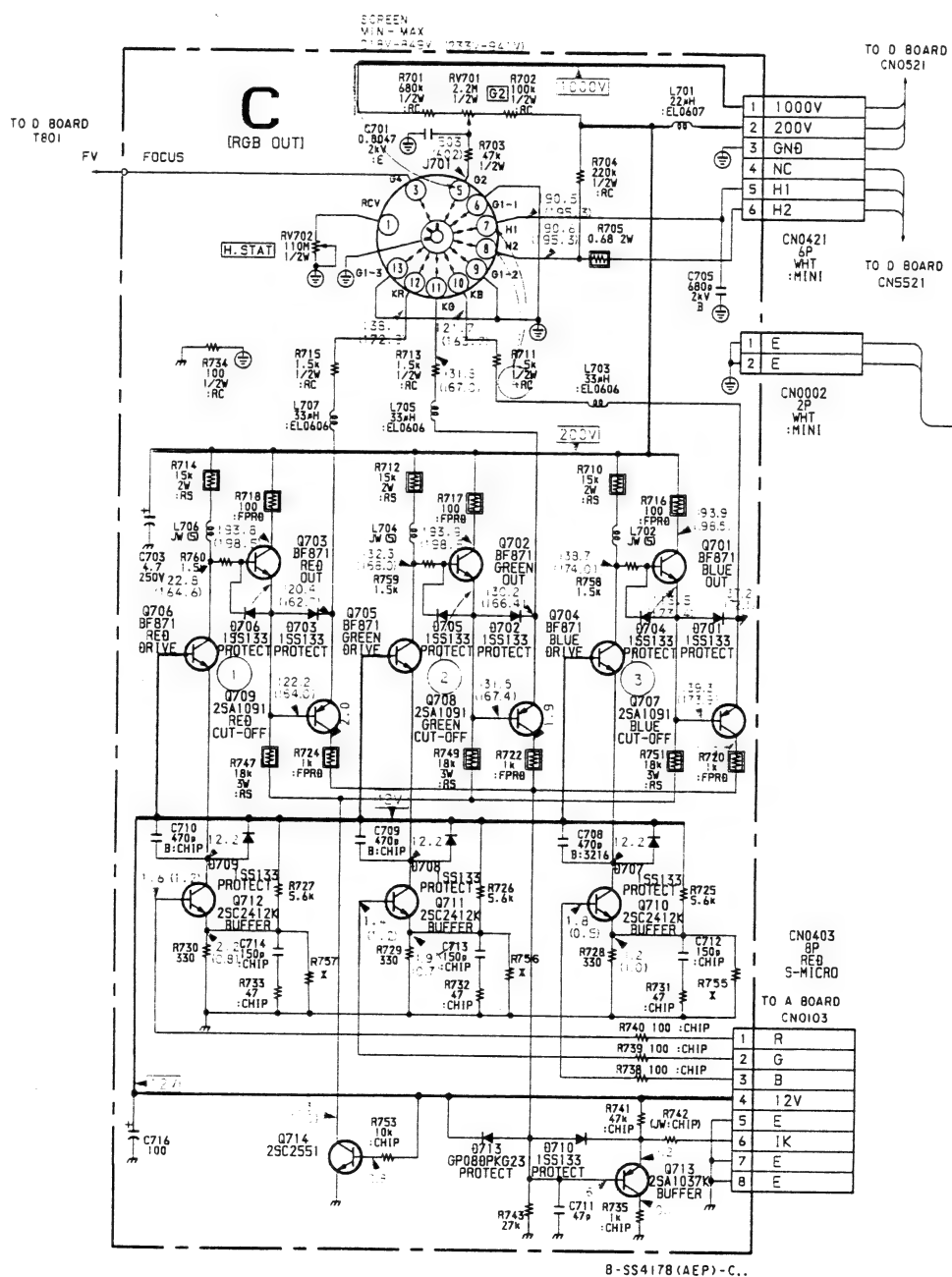


**IF BOARD IC3 PCF8574 (KV-E2531B/ E2931B/ E3431B)**



**C BOARD : \* MARK**

	KV-E2531D KV-E2531B	KV-E2931D KV-E2931B	KV-E3431D KV-E3431B
R755	6.8K 1/10W	2.2K 1/10W	4.7K 1/10W
R756	6.8K 1/10W	2.2K 1/10W	4.7K 1/10W
R757	6.8K 1/10W	2.2K 1/10W	4.7K 1/10W



B-SS4178(AEP)-C..





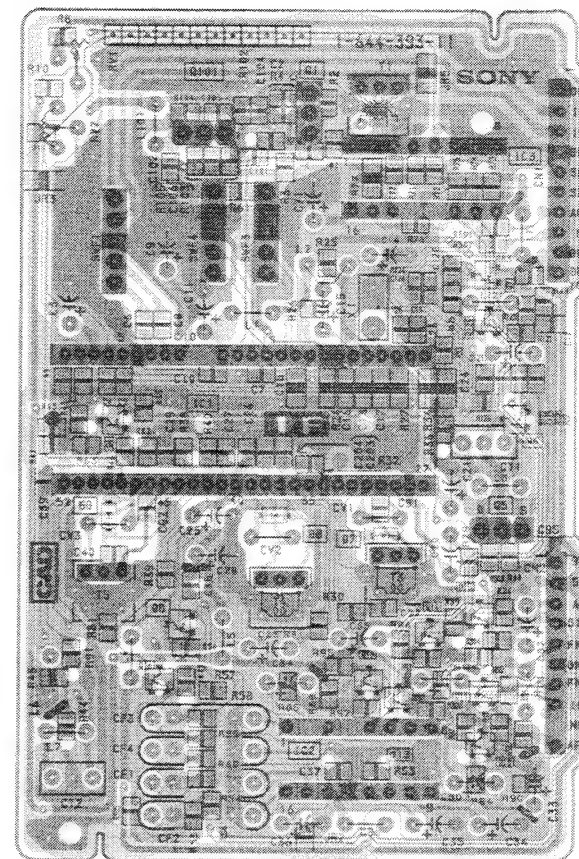
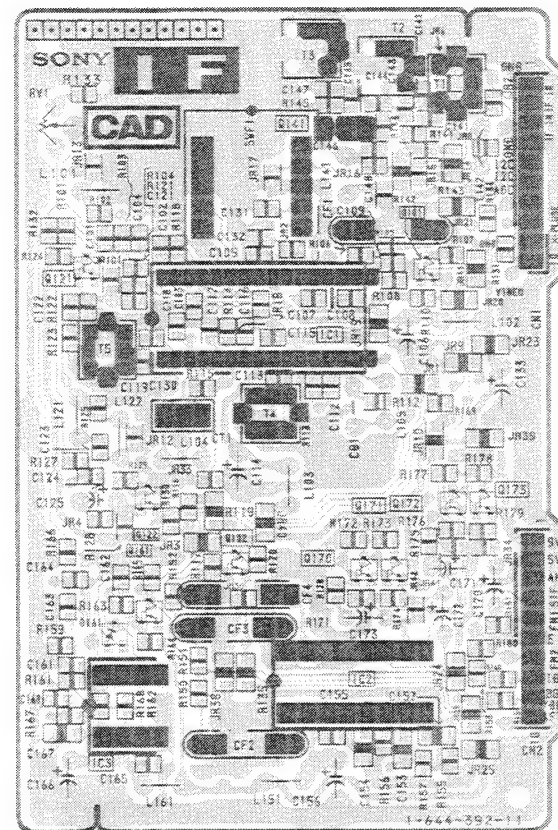
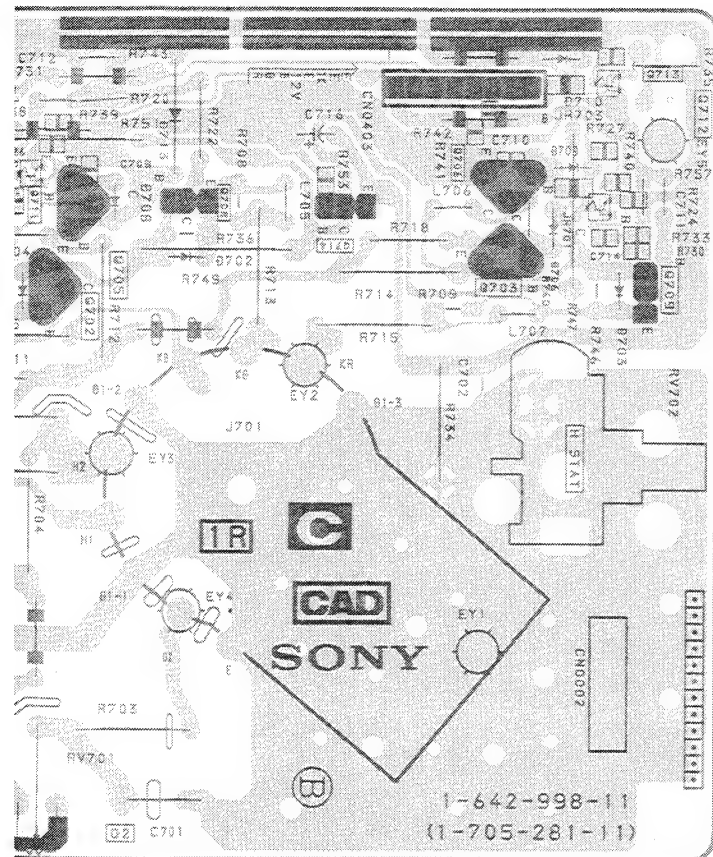


**KV-E2531D/E2931D/E3431D**  
**KV-E2531B/E2931B/E3431B**  
 RM-830 RM-830 RM-832

[VIF, SIF]

—IF Board—(KV-E2531D/ E2931D/ E3431D ONLY)

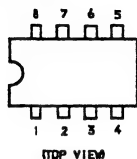
— IF Board — (KV-E2531B/ E2931B/ E3431B ONLY)



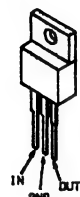


## 5-5. SEMICONDUCTORS

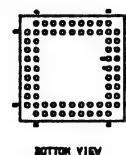
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T8A4605-3  
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X24C16P



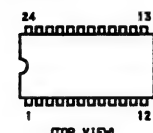
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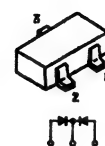


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8TC114EK  
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2SC2413K-Q  
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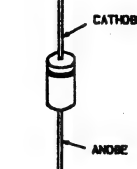
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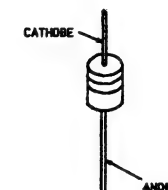
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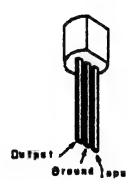
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MTZJ-5.6B  
MTZJ-6.2B  
MTZJ-7.5A  
MTZJ-9.1  
R012ESB2  
R05.6ESB1  
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ISS119  
ISS133T-77



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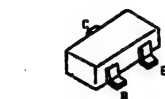
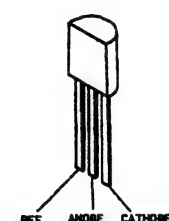
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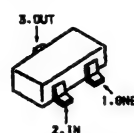
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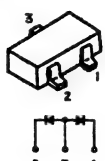
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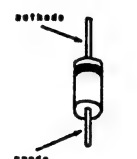
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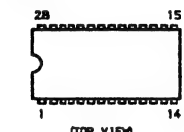
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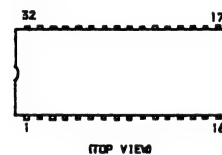
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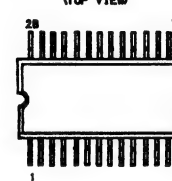
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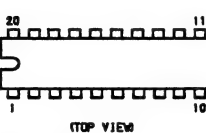
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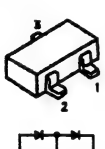
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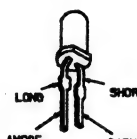
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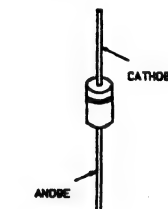
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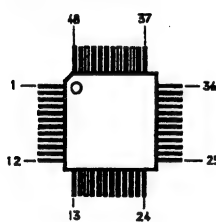
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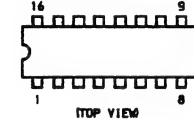
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CX02018Q



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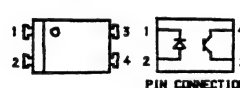
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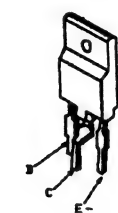
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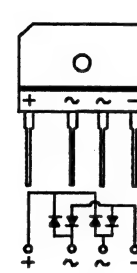
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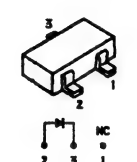
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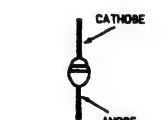
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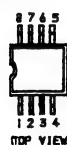
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MA3056M-TX  
R05.6M-B2



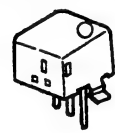
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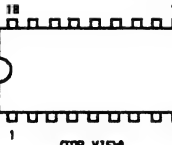
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SBX1610-11



T8A2595/V9



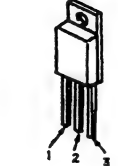
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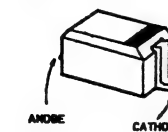
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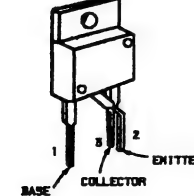
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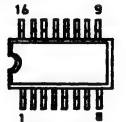
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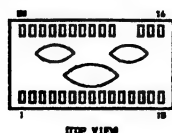
BUZ91



T8A4660T



SBX1692-01



NOTE:  
• Items with  
not stock  
routine se  
• The const  
indicated  
column.

## 6-1. CHA

■ : BVTP4)

REF. NO. PART

1 \*1-64:  
2 \*1-64:  
3 4-20  
4 Δ-1-57  
5 \*A-16:  
6 4-031  
7 Δ-4-38:  
8 Δ-1-591

Δ-1-591

9 \*A-16:  
10 \*A-16:  
\*A-16:

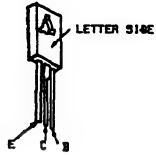


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KV-E2531B/E2931B/E3431B  
RM-830 RM-830 RM-832

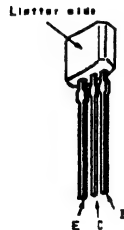
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KV-E2531B/E2931B/E3431B  
RM-830 RM-830 RM-832

## SECTION 6 EXPLODED VIEWS

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2SC2688



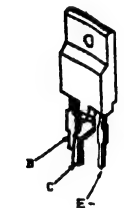
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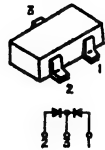
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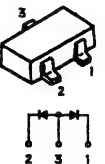
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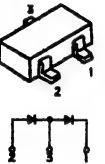
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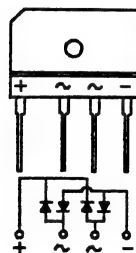
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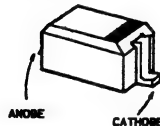
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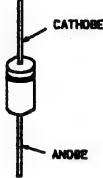
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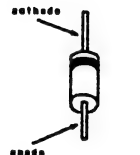
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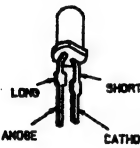
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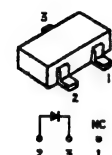
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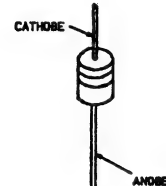
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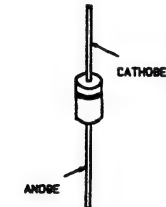
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MA3056M-TX  
R05.6M-B2



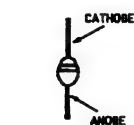
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MTZJ-9.1  
R012ESB2  
R05.6ESB1  
R05.6ESB2  
R06.2ESB2  
R07.5ESB2  
ISS119  
ISS133T-77



RGP10GPKG23  
RU30ALFS1  
RU-3AM




U05G




### NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

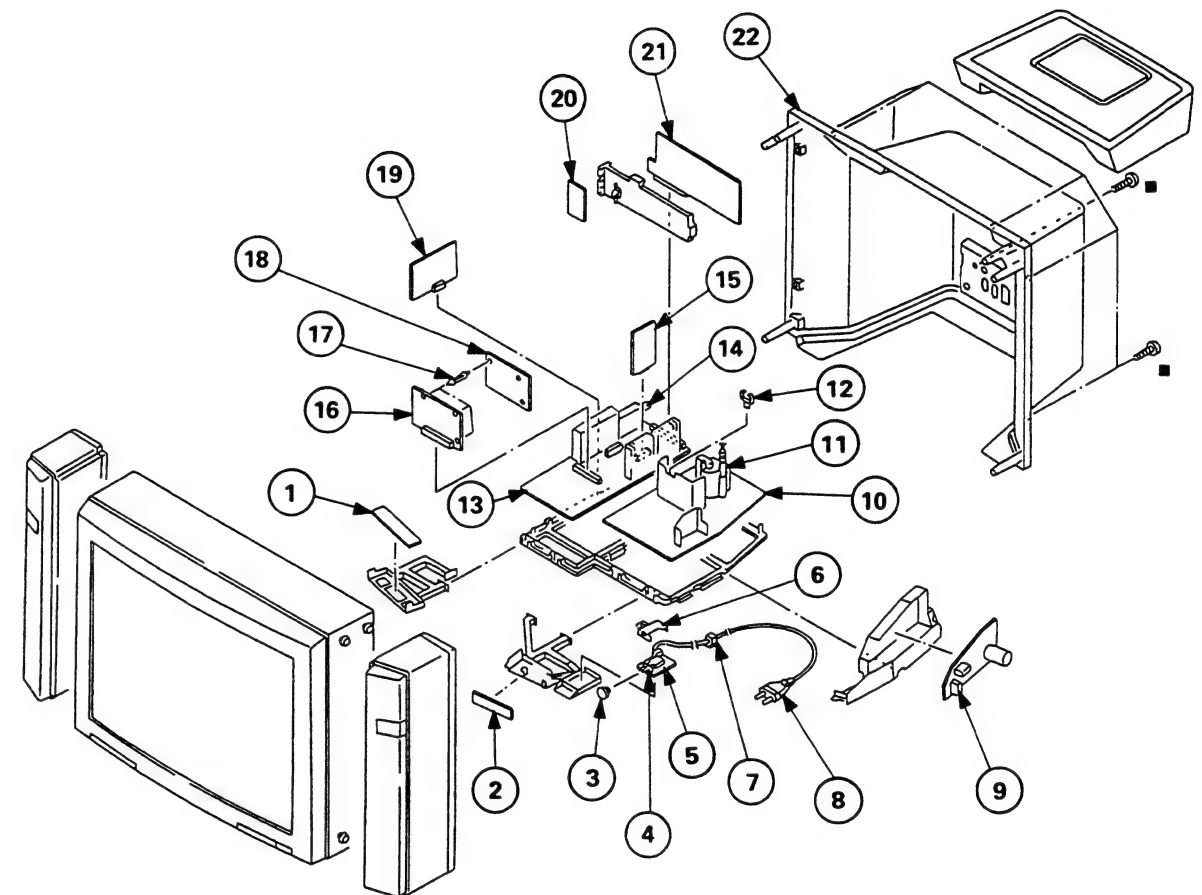
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

### 6-1. CHASSIS (KV-E2531D/ E2531B/ E2931D/ E2931B)

■ : BVTP4x16 7-685-663-79

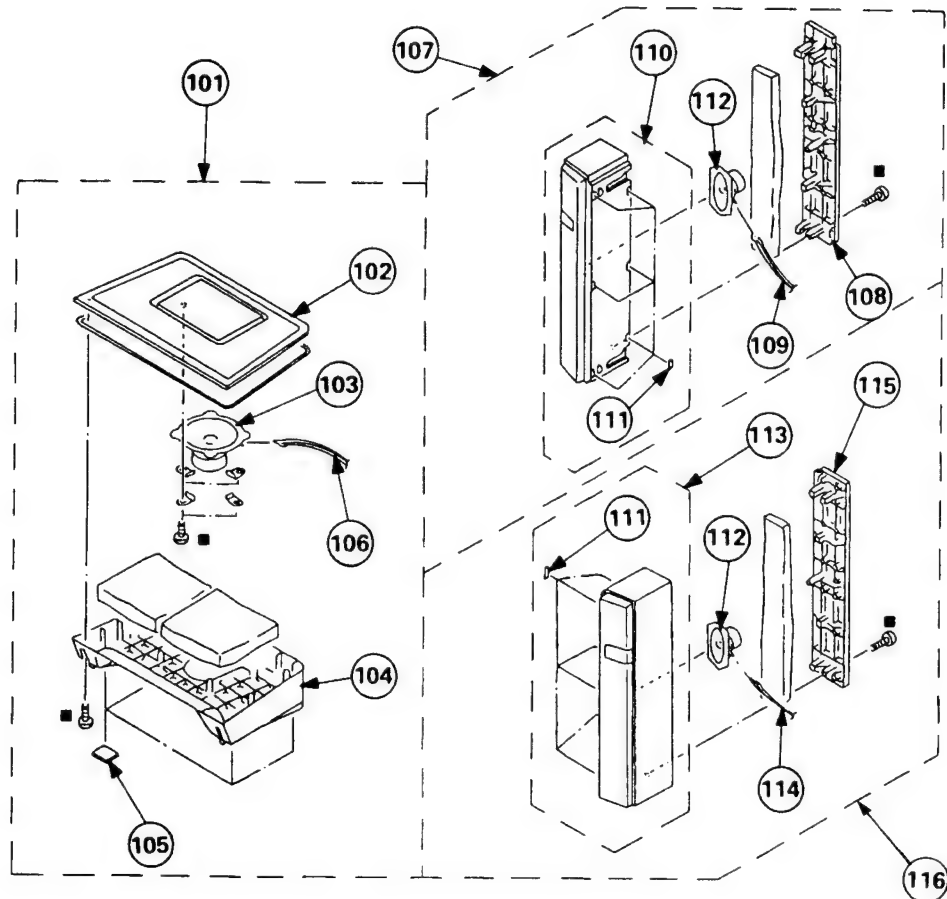


REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
1	*1-643-004-11	H1 BOARD		11	Δ.1-453-118-11	TRANSFORMER ASSY, FLYBACK (UX-2600A2)	
2	*1-642-997-11	H2 BOARD		12	*3-646-071-00	HOLDER, WIRE	
3	4-201-011-01	CAP, SWITCH		13	*A-1632-101-A	A BOARD, COMPLETE (KV-E2531B, E2931B)	
4	Δ.1-571-433-12	SWITCH, PUSH (AC POWER)			*A-1632-090-A	A BOARD, COMPLETE (KV-E2531D, E2931D)	
5	*A-1624-009-A	F1 BOARD, COMPLETE		14	Δ.1-693-185-11	TUNER (UV916H)	
6	4-036-633-01	COVER, POWER SWITCH		15	*A-1620-036-A	B1 BOARD, COMPLETE	
7	Δ.4-389-201-03	HOLDER, AC CORD		16	*A-1635-001-A	M BOARD, COMPLETE	
8	Δ.1-590-460-11	CORD, POWER (WITH CONNECTOR)		17	*4-385-948-01	HOLDER, PCB	
		(KV-E2531B, E2931B)		18	*A-1645-024-A	V BOARD, COMPLETE	
	Δ.1-590-501-11	CORD, POWER (WITH NOISE FILTER)		19	*A-1622-005-A	P BOARD, COMPLETE	
		(KV-E2531D, E2931D)		20	*1-643-003-11	K BOARD	
9	*A-1624-010-A	F2 BOARD, COMPLETE		21	*A-1651-033-A	J BOARD, COMPLETE	
10	*A-1642-075-A	D BOARD, COMPLETE (KV-E2531B, E2531D)		22	4-201-017-11	COVER, REAR (KV-E2531B, E2531D)	
	*A-1642-074-A	D BOARD, COMPLETE (KV-E2931B, E2931D)			4-200-026-21	COVER, REAR (KV-E2931B, E2931D)	



### 6-3. SPEAKER (KV-E2531D/ E2531B/ E2931D/ E2931B)

■ : BVTP4x16 7-685-663-79

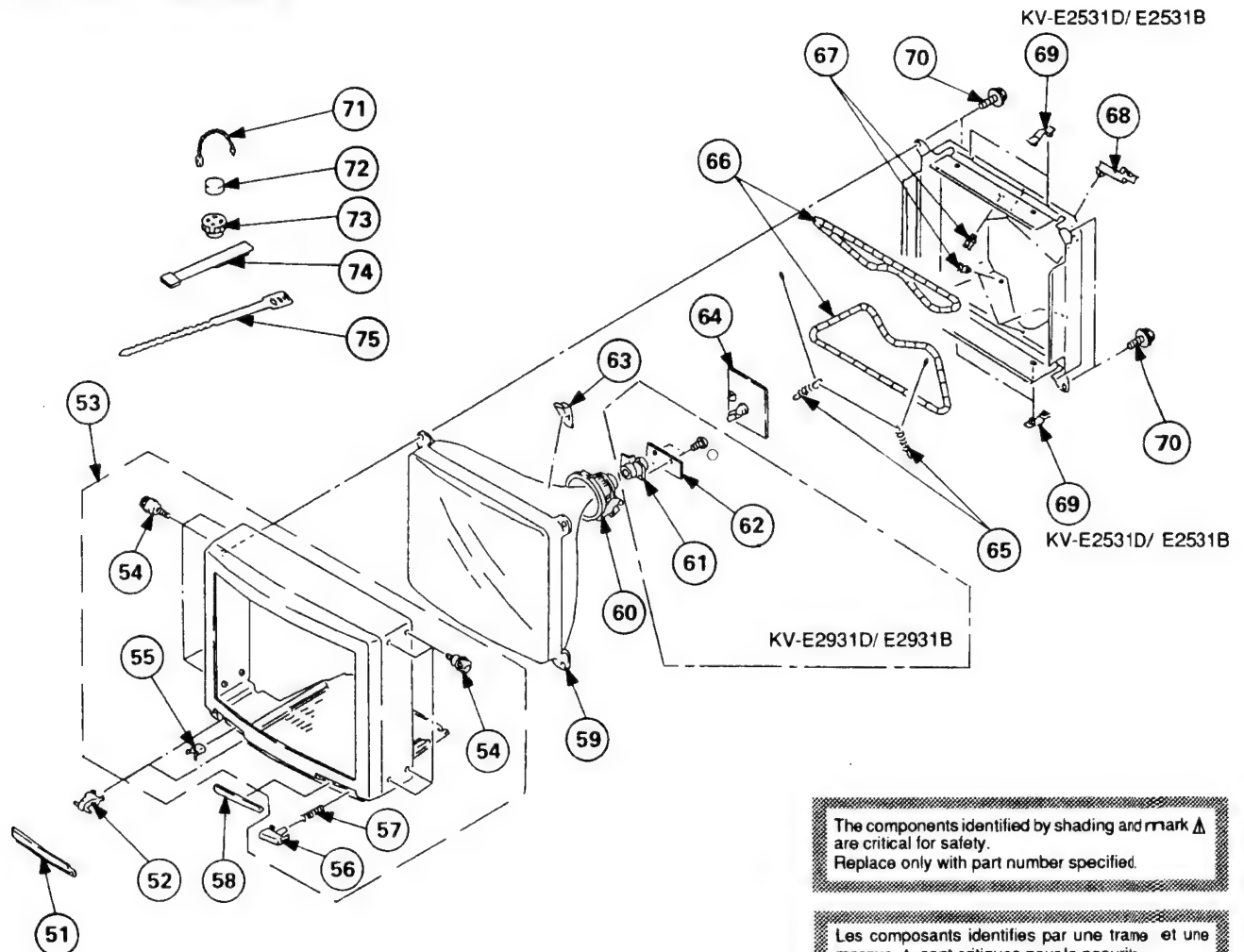


REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
101	A-1678-043-A	BOX ASSY, WOOFER		111	4-200-006-01	CUSHION, FOOT	
102	X-4200-004-3	BOARD ASSY, BAFFLE	102~106	112	1-504-151-11	SPEAKER (7.5X13CM)	
103	1-544-767-11	SPEAKER (13CM)		113	X-4030-414-1	BOX (RIGHT) ASSY, SIDE	111
104	4-200-027-11	BOX, WOOFER			X-4030-426-1	BOX (RIGHT) ASSY, SIDE	(KV-E2531B, E2931D)
105	4-200-009-01	CUSHION, FOOT		114	1-696-407-11	CABLE, SPEAKER (WITH GROMMET)	111
106	1-696-409-11	CABLE, SPEAKER (WITH GROMMET)		115	4-036-626-01	PANEL (RIGHT), REAR (KV-E2531B, E2531D)	111
107	A-1678-044-A	BOX COMPLETE ASSY (L)	108-112	116	4-036-644-01	PANEL (RIGHT), REAR (KV-E2931B, E2931D)	111
	A-1678-041-A	BOX COMPLETE ASSY (L)	(KV-E2531B, E2531D)		A-1678-047-A	BOX COMPLETE ASSY (R)	111~115
108	4-036-628-01	PANEL (LEFT), REAR (KV-E2531B, E2531D)	108-112		A-1678-040-A	BOX COMPLETE ASSY (R)	(KV-E2531B, E2931D)
109	4-036-654-01	PANEL (LEFT), REAR (KV-E2931B, E2931D)	108-112				111~115
110	1-696-406-11	CABLE, SPEAKER (WITH GROMMET)					(KV-E2931B, E2931D)
	X-4030-418-1	BOX (LEFT) ASSY, SIDE	111				
	X-4030-427-1	BOX (LEFT) ASSY, SIDE	(KV-E2531B, E2531D)				
			111				
			(KV-E2931B, E2931D)				



## 6-2. PICTURE TUBE (KV-E2531D/ E2531B/ E2931D/ E2931B)

○ : BVTP3x8 7-685-646-79



The components identified by shading and mark ▲ are critical for safety.  
Replace only with part number specified.

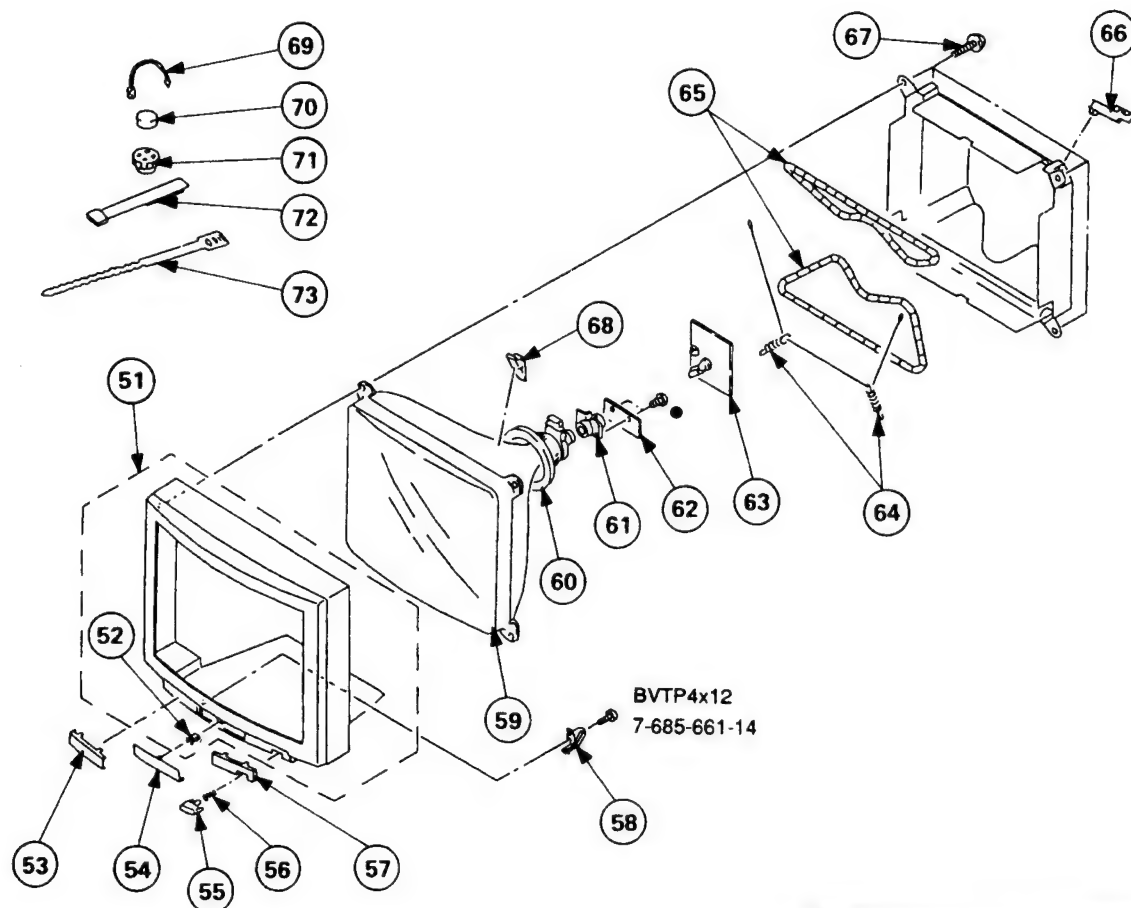
Les composants identifiés par une trame et une marque ▲ sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié.

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
51	X-4201-006-8	DOOR ASSY, CONTROL (KV-E2531B,E2531D)		61	▲.1-452-509-42	NECK ASSY, PICTURE TUBE (NA-308) (KV-E2931B,E2931D)	
	X-4200-001-9	LID ASSY, CONTROL (KV-E2931B,E2931D)		62	*A-1644-028-A	VM BOARD, COMPLETE (KV-E2931B,E2931D)	
52	3-703-035-11	SHAFT, LID		63	3-704-495-01	SPACER, DY	
53	X-4030-417-1	CABINET ASSY (WITH BEZEL ASSY) 54~57 (KV-E2531B,E2531D)		64	*A-1638-027-A	C BOARD, COMPLETE (KV-E2531B,E2531D)	
	X-4030-411-1	CABINET ASSY (WITH BEZEL ASSY) 54~57 (KV-E2931B,E2931D)			*A-1638-025-A	C BOARD, COMPLETE (KV-E2931B,E2931D)	
54	X-4374-104-1	SCREW (B) ASSY, ORNAMENTAL		65	4-303-774-21	SPRING, GROUND WIRE (KV-E2531B,E2531D)	
55	4-392-036-01	CATCHER, PUSH			4-369-318-31	SPRING, TENSION (KV-E2931B,E2931D)	
56	4-200-013-01	BUTTON, POWER		66	▲.1-402-746-21	COIL, DEGAUSSING (KV-E2531B,E2531D)	
57	4-329-112-21	SPRING			▲.1-402-747-21	COIL, DEGAUSSING (KV-E2931B,E2931D)	
58	4-200-017-31	WINDOW, ORNAMENTAL		67	4-034-296-01	HOLDER, DGC	
59	▲.8-733-231-05	PICTURE TUBE (A59JWC61X) (KV-E2531B,E2531D)		68	*4-387-284-01	HOLDER, LEAD	
	▲.8-733-831-05	PICTURE TUBE (A68JYL61X) (KV-E2931B,E2931D)		69	*4-385-916-01	HOLDER (D) (KV-E2531B,E2531D)	
60	▲.1-451-311-21	DEFLECTION YOKE (Y25FXA) (KV-E2531B,E2531D)		70	4-036-188-01	SCREW (M), PT	
	▲.1-451-313-21	DEFLECTION YOKE (Y29FXA) (KV-E2931B,E2931D)		71	4-308-870-00	CLIP, LEAD WIRE	
				72	1-452-032-00	MAGNET, DISK; 10MM φ	
				73	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM φ	
				74	X-4387-214-1	PERMALLOY ASSY, CORRECTION	
				75	3-701-007-00	BAND, BINDING	



## 6-5. PICTURE TUBE (KV-E3431D/ E3431B)

● : BVTP3x12 7-685-648-79



The components identified by shading and mark are critical for safety.  
Replace only with part number specified.

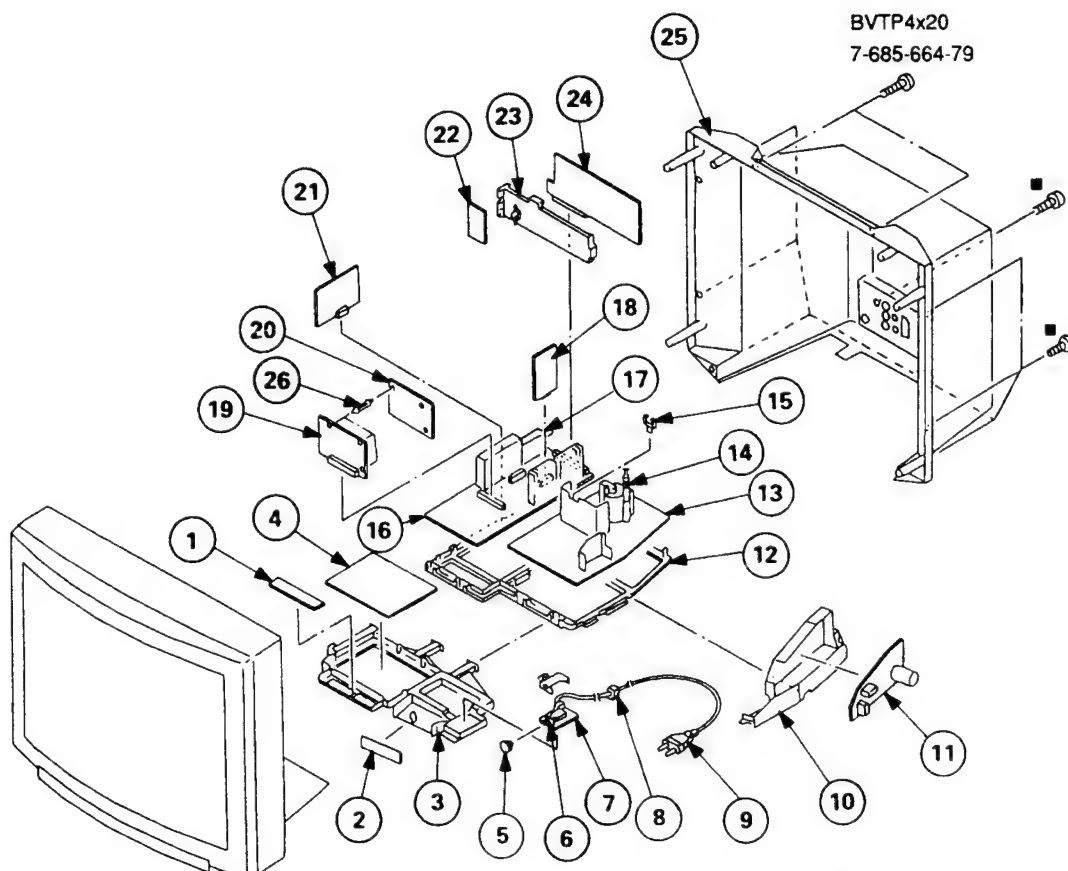
Les composants identifiés par une trame et une  
marque sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le  
numéro spécifié.

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
51	X-4200-119-1	CABINET ASSY (WITH BEZEL ASSY)	52	63	*A-1638-026-A	C BOARD, COMPLETE	
52	4-392-036-01	CATCHER, PUSH		64	*4-376-036-01	SPRING, TENSION	
53	4-200-435-01	PLATE, ORNAMENTAL		65	△.1-402-748-11	COIL, DEGAUSSING	
54	4-200-828-01	DOOR		66	*4-387-284-01	HOLDER, LEAD	
55	4-200-444-01	BUTTON, POWER		67	4-200-976-01	SCREW, PT	
56	4-329-112-41	SPRING		68	3-704-495-01	SPACER, DY	
57	4-200-443-01	WINDOW, ORNAMENTAL		69	4-308-870-00	CLIP, LEAD WIRE	
58	X-4029-881-1	DAMPER ASSY		70	1-452-032-00	MAGNET, DISK; 10MM $\phi$	
59	△.8-733-723-05	PICTURE TUBE (A80JYV50X)		71	1-452-094-00	MAGNET, ROTABLE DISK; 15MM $\phi$	
60	△.1-451-315-11	DEFLECTION YOKE (Y34FXA)		72	X-4306-312-0	PERMALLOY ASSY, CONVERGENCE	
61	△.1-452-579-11	NECK ASSY, PICTURE TUBE (NA322)		73	3-701-007-00	BAND, BINDING	
62	*A-1342-189-A	VM BOARD, COMPLETE					



## 6-4. CHASSIS (KV-E3431D/ E3431B)

■ : BVTP4x16 7-685-663-79



The components identified by shading and mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

Les composants identifiés par une trame et une marque  $\Delta$  sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié.

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
1	*1-643-004-11	H1 BOARD		14	$\Delta$ 1-453-123-11	TRANSFORMER ASSY, FLYBACK (UX-2602A3)	
2	*1-642-997-11	H2 BOARD		15	*3-646-071-00	HOLDER, WIRE	
3	*4-202-171-01	BRACKET, H		16	*A-1297-007-A	A BOARD, COMPLETE (KV-E3431B)	
4	*A-1640-083-A	D1 BOARD, COMPLETE			*A-1297-008-A	A BOARD, COMPLETE (KV-E3431D)	
5	4-386-611-01	COVER, SWITCH		17	$\Delta$ 1-693-185-11	TUNER (UV916H)	
6	$\Delta$ 1-571-433-12	SWITCH, PUSH (AC POWER)		18	*A-1131-037-A	B1 BOARD, COMPLETE	
7	*A-1241-086-A	F1 BOARD, COMPLETE		19	*A-1635-001-A	M BOARD, COMPLETE	
8	$\Delta$ 4-389-201-03	HOLDER, AC CORD		20	*A-1347-069-A	V BOARD, COMPLETE	
9	$\Delta$ 1-590-460-11	CORD, POWER (WITH CONNECTOR) (KV-E3431B)		21	*A-1622-005-A	P BOARD, COMPLETE	
	$\Delta$ 1-590-501-11	CORD, POWER (WITH NOISE FILTER) (KV-E3431D)		22	*1-643-003-11	K BOARD	
10	*4-202-140-01	BRACKET, F		23	*4-202-135-01	BRACKET, J	
11	*A-1624-012-A	F2 BOARD, COMPLETE		24	*A-1651-039-A	J BOARD, COMPLETE	
12	*4-202-141-01	BRACKET, MAIN		25	X-4200-118-1	COVER ASSY, REAR	
13	*A-1642-083-A	D BOARD, COMPLETE		26	*4-385-948-01	HOLDER, PCB	



B1

SECTION 7  
ELECTRICAL PARTS LIST

## NOTE:

The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

## RESISTORS

- All resistors are in ohms
- F: nonflammable

When indicating parts by reference number, please include the board name.

## CAPACITORS

- MF:  $\mu$ F, PF:  $\mu$ F

## COILS

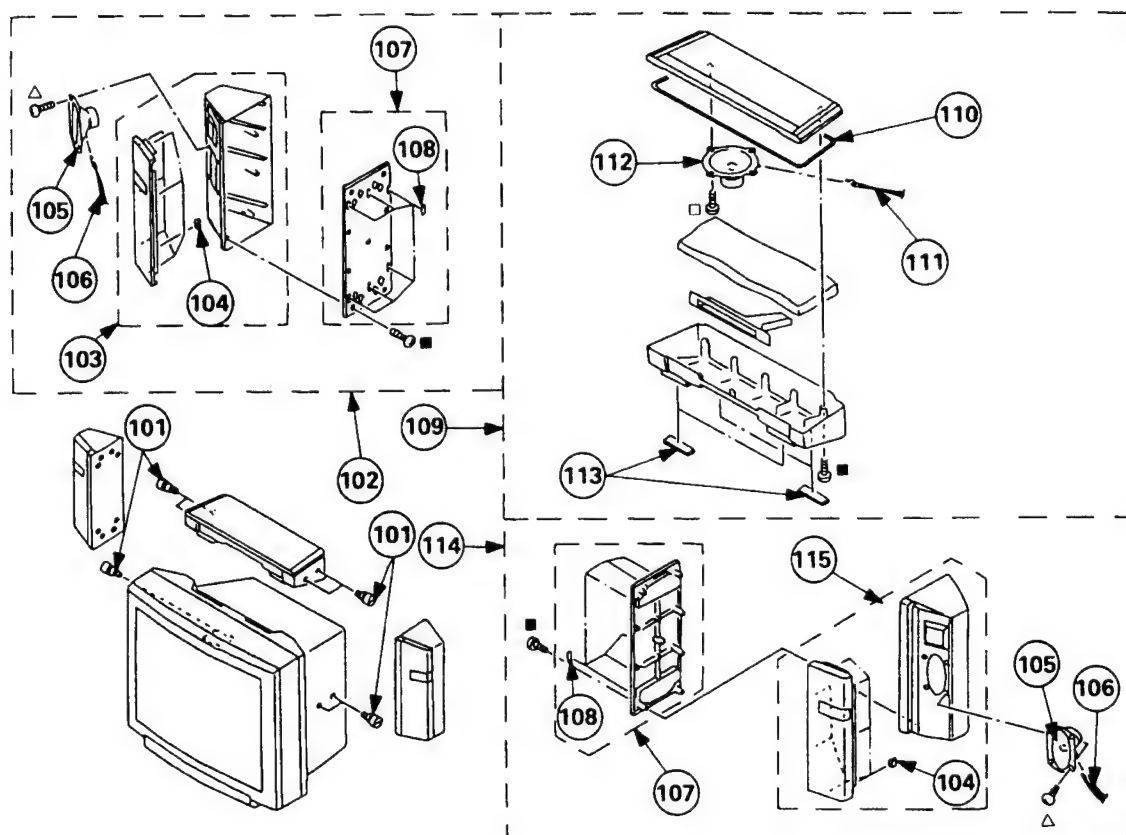
- MMH: mH, UH:  $\mu$ H

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
*A-1620-036-A	B1 BOARD, COMPLETE	*****				<COIL>	
	(KV-E2531B, E2531D, E2931B, E2931D)			L1301	1-408-405-00	INDUCTOR	4.7UH
*A-1131-037-A	B1 BOARD, COMPLETE (KV-E3431B, E3431D)	*****		L1302	1-408-405-00	INDUCTOR	4.7UH
				L1304	1-408-406-00	INDUCTOR	5.6UH
				L1305	1-408-418-00	INDUCTOR	56UH
						<TRANSISTOR>	
				Q1301	8-729-120-28	TRANSISTOR	2SC1623-L5L6
				Q1302	8-729-120-28	TRANSISTOR	2SC1623-L5L6
				Q1305	8-729-216-22	TRANSISTOR	2SA1162-G
				Q1306	8-729-120-28	TRANSISTOR	2SC1623-L5L6
				Q1307	8-729-216-22	TRANSISTOR	2SA1162-G
				Q1308	8-729-216-22	TRANSISTOR	2SA1162-G
				Q1309	8-729-216-22	TRANSISTOR	2SA1162-G
				Q1310	8-729-216-22	TRANSISTOR	2SA1162-G
				Q1311	8-729-216-22	TRANSISTOR	2SA1162-G
				Q1316	8-729-120-28	TRANSISTOR	2SC1623-L5L6
						<RESISTOR>	
				JR1	1-216-295-00	METAL GLAZE	0 5% 1/10W
				JR2	1-216-295-00	METAL GLAZE	0 5% 1/10W
				JR3	1-216-295-00	METAL GLAZE	0 5% 1/10W
				JR4	1-216-296-00	METAL GLAZE	0 5% 1/8W
				JR5	1-216-296-00	METAL GLAZE	0 5% 1/8W
				JR6	1-216-295-00	METAL GLAZE	0 5% 1/10W
				JR7	1-216-295-00	METAL GLAZE	0 5% 1/10W
				R1301	1-216-071-00	METAL GLAZE	8.2K 5% 1/10W
				R1302	1-216-083-00	METAL GLAZE	27K 5% 1/10W
				R1303	1-216-051-00	METAL GLAZE	1.2K 5% 1/10W
				R1304	1-216-043-00	METAL GLAZE	560 5% 1/10W
				R1305	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W
				R1306	1-216-049-00	METAL GLAZE	1K 5% 1/10W
				R1307	1-216-049-00	METAL GLAZE	1K 5% 1/10W
				R1308	1-216-025-00	METAL GLAZE	100 5% 1/10W
				R1310	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W
				R1311	1-216-051-00	METAL GLAZE	1.2K 5% 1/10W
				R1312	1-216-035-00	METAL GLAZE	270 5% 1/10W
				R1313	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W
				R1314	1-216-216-00	METAL GLAZE	5.6K 5% 1/8W
				R1315	1-216-043-00	METAL GLAZE	560 5% 1/10W
				R1316	1-216-049-00	METAL GLAZE	1K 5% 1/10W
				R1319	1-216-055-00	METAL GLAZE	1.8K 5% 1/10W
				R1320	1-216-043-00	METAL GLAZE	560 5% 1/10W
				R1321	1-216-204-00	METAL GLAZE	1.8K 5% 1/8W
				R1322	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W
				R1324	1-216-049-00	METAL GLAZE	1K 5% 1/10W
				R1326	1-216-202-00	METAL GLAZE	1.5K 5% 1/8W
				R1327	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W
				R1328	1-216-043-00	METAL GLAZE	560 5% 1/10W
						<CONNECTOR>	
				CN0302*1-573-299-11	CONNECTOR, BOARD TO BOARD 10P		
						<DIODE>	
				D1302	8-719-400-18	DIODE MA152WK	
						<FILTER>	
				FL1301	1-236-620-11	FILTER, LOW PASS	
				FL1302	1-236-620-11	FILTER, LOW PASS	
				FL1303	1-236-620-11	FILTER, LOW PASS	
				FL1304	1-236-164-11	ENCAPSULATED COMPONENT	
						<IC>	
				IC1301	8-741-692-01	IC SBX1692-01	



## 6-6. SPEAKER (KV-E3431D/ E3431B)

- : BVTP4x16 7-685-663-79  
□ : BVTP4x10 7-685-660-79  
△ : BVTP4x8 7-685-659-79



REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
101	X-4374-104-1	SCREW (B) ASSY, ORNAMENTAL		109	A-1678-050-A	BOX ASSY, WOOFER	110~113
102	A-1678-039-A	BOX COMPLETE ASSY (LEFT)		110	*4-200-471-01	GASKET	
103	X-4200-115-1	BOX ASSY, SIDE (L)	103~108	111	1-696-410-11	CABLE, SPEAKER (WITH GROMMET)	
104	4-202-030-01	CLIP	104	112	1-544-767-11	SPEAKER (13CM)	
105	1-504-151-21	SPEAKER (7.5X13CM)		113	4-200-473-01	CUSHION, FOOT (B)	
106	1-696-408-11	CABLE, SPEAKER (WITH GROMMET)		114	A-1678-038-A	BOX COMPLETE ASSY (RIGHT)	114~108, 115
107	X-4200-116-1	BOTTOM ASSY, SIDE	108	115	X-4200-117-1	BOX ASSY, SIDE (R)	104
108	4-200-006-11	CUSHION, FOOT					



**A**

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
C324	1-124-910-11	ELECT 47MF	20% 50V	CN0102	1-573-296-11	CONNECTOR, BOARD TO BOARD 10P	
C341	1-163-077-00	CERAMIC CHIP 0.1MF	10% 25V	CN0103	*1-564-511-11	PLUG, CONNECTOR 8P	
C342	1-163-077-00	CERAMIC CHIP 0.1MF	10% 25V	CN0104	*1-568-882-51	PIN, CONNECTOR 7P	
C343	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	CN0105	*1-568-880-51	PIN, CONNECTOR 5P	
C344	1-162-638-11	CERAMIC CHIP 1MF	16V	CN0107	*1-568-879-51	PIN, CONNECTOR 4P	
C345	1-164-346-11	CERAMIC CHIP 1MF	16V	CN0108	*1-568-878-51	PIN, CONNECTOR 3P	
C347	1-162-638-11	CERAMIC CHIP 1MF	16V	CN0109	1-695-299-11	CONNECTOR, BOARD TO BOARD 50P	
C348	1-164-346-11	CERAMIC CHIP 1MF	16V	CN0110	*1-568-882-51	PIN, CONNECTOR 7P	
C349	1-164-346-11	CERAMIC CHIP 1MF	16V	CN0111	1-568-882-51	PIN, CONNECTOR 7P	
C350	1-124-907-11	ELECT 10MF	20% 50V	CN0113	1-695-298-11	CONNECTOR, BOARD TO BOARD 40P	
C351	1-126-233-11	ELECT 22MF	20% 50V	CN0114	*1-568-879-51	PIN, CONNECTOR 4P	
C353	1-164-346-11	CERAMIC CHIP 1MF	16V	CN0115	*1-564-516-11	PLUG, CONNECTOR 13P	
C354	1-164-346-11	CERAMIC CHIP 1MF	16V	CN0116	*1-568-879-51	PIN, CONNECTOR 4P	
C355	1-162-638-11	CERAMIC CHIP 1MF	16V	CN0119	*1-568-879-81	PIN, CONNECTOR 4P	
C356	1-164-489-11	CERAMIC CHIP 0.22MF	10% 16V	CN0137	*1-564-511-11	PLUG, CONNECTOR 8P	
C357	1-164-299-11	CERAMIC CHIP 0.22MF	10% 25V	CN5108	*1-564-513-11	PLUG, CONNECTOR 10P	
C358	1-164-299-11	CERAMIC CHIP 0.22MF	10% 25V	<DIODE>			
C359	1-124-907-11	ELECT 10MF	20% 50V	D068	8-719-104-34	DIODE 1S2836	
C361	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	D069	8-719-104-34	DIODE 1S2836	
C362	1-137-134-91	FILM 0.22MF	5% 63V	D071	8-719-109-89	DIODE RD5.6ES-B2	
C363	1-124-907-11	ELECT 10MF	20% 50V	D073	8-719-109-89	DIODE RD5.6ES-B2	
C365	1-124-120-11	ELECT 220MF	20% 16V	D075	8-719-400-18	DIODE MA152WK	
C366	1-124-903-11	ELECT 1MF	20% 50V	D077	8-719-400-18	DIODE MA152WK	
C401	1-164-005-11	CERAMIC CHIP 0.47MF	16V	D078	8-719-109-89	DIODE RD5.6ES-B2	
C402	1-124-917-11	ELECT 33MF	20% 50V	D079	8-719-109-89	DIODE RD5.6ES-B2	
C403	1-164-005-11	CERAMIC CHIP 0.47MF	16V	D101	8-719-982-27	DIODE MTZJ-33C	
C411	1-164-005-11	CERAMIC CHIP 0.47MF	25V	D205	8-719-023-21	DIODE DA116-T146	
C412	1-164-005-11	CERAMIC CHIP 0.47MF	25V	D206	8-719-400-18	DIODE MA152WK	
C421	1-124-910-11	ELECT 47MF	20% 50V	D207	8-719-921-89	DIODE MTZJ-13C	
C422	1-124-910-11	ELECT 47MF	20% 50V	D208	8-719-911-19	DIODE 1SS119	
C423	1-101-004-00	CERAMIC 0.01MF	50V	D209	8-719-911-19	DIODE 1SS119	
C424	1-163-129-00	CERAMIC CHIP 330PF	5% 50V	D210	8-719-911-19	DIODE 1SS119	
C425	1-163-129-00	CERAMIC CHIP 330PF	5% 50V	D211	8-719-911-19	DIODE 1SS119	
C426	1-124-910-11	ELECT 47MF	20% 50V	D212	8-719-911-19	DIODE 1SS119	
C427	1-164-346-11	CERAMIC CHIP 1MF	16V	D213	8-719-400-18	DIODE MA152WK	
C428	1-164-346-11	CERAMIC CHIP 1MF	16V	D301	8-719-400-18	DIODE MA152WK	
C429	1-124-119-00	ELECT 330MF	20% 16V	D302	8-719-104-34	DIODE 1S2836	
C574	1-163-117-00	CERAMIC CHIP 100PF	5% 50V	D303	8-719-104-34	DIODE 1S2836	
C581	1-163-031-11	CERAMIC CHIP 0.01MF	50V	D304	8-719-109-89	DIODE RD5.6ES-B2	
C582	1-126-233-11	ELECT 22MF	20% 50V	D305	8-719-400-18	DIODE MA152WK	
C583	1-163-121-00	CERAMIC CHIP 150PF	5% 50V	D306	8-719-400-18	DIODE MA152WK	
C586	1-163-063-00	CERAMIC CHIP 0.022MF	10% 50V	D307	8-719-400-18	DIODE MA152WK	
C587	1-124-903-11	ELECT 1MF	20% 50V	D308	8-719-800-76	DIODE 1SS226	
C588	1-164-346-11	CERAMIC CHIP 1MF	16V	D311	8-719-800-76	DIODE 1SS226	
C589	1-126-233-11	ELECT 22MF	20% 50V	D381	8-719-110-03	DIODE RD7.5ES-B2	
C590	1-126-233-11	ELECT 22MF	20% 50V	D401	8-719-921-69	DIODE MTZJ-9.1	
C591	1-124-925-11	ELECT 2.2MF	20% 50V	D403	8-719-921-69	DIODE MTZJ-9.1	
C592	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V	D405	8-719-921-69	DIODE MTZJ-9.1	
C593	1-164-182-11	CERAMIC CHIP 0.0033MF	10% 50V	D406	8-719-921-69	DIODE MTZJ-9.1	
C595	1-163-117-00	CERAMIC CHIP 100PF	5% 50V	D407	8-719-921-69	DIODE MTZJ-9.1	
C681	1-124-478-11	ELECT 100MF	20% 25V	D571	8-719-800-76	DIODE 1SS226	
C682	1-126-101-11	ELECT 100MF	20% 16V	D681	8-719-981-99	DIODE MTZJ-3.3	
C683	1-124-478-11	ELECT 100MF	20% 25V	D682	8-719-109-89	DIODE RD5.6ES-B2	
C684	1-124-478-11	ELECT 100MF	20% 25V	<IC>			
C685	1-124-478-11	ELECT 100MF	20% 25V	IC072	8-759-073-14	IC X24C16P	
<FILTER>				IC201	8-759-073-30	IC TDA6612	
CF581	1-577-611-11	OSCILLATOR, CERAMIC		IC202	8-759-502-21	IC TDA2822M	
<CONNECTOR>				IC251	8-759-072-99	IC TDA2052	
CN0001	*1-568-880-71	PIN, CONNECTOR 5P		IC261	8-759-072-99	IC TDA2052	
CN0101	1-695-297-11	CONNECTOR, BOARD TO BOARD 20P		(KV-E2531D,E2931D,E3431D)			



The components identified by shading and mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

Les composants identifiés par une trame et une marque  $\Delta$  sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié.

KV-E2531D/E2931D/E3431D  
KV-E2531B/E2931B/E3431B  
RM-830 RM-830 RM-832

B1 F1 A

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
R1329	1-216-043-00	METAL GLAZE 560 5% 1/10W		C204	1-164-005-11	CERAMIC CHIP 0.47MF	25V
R1330	1-216-073-00	METAL GLAZE 10K 5% 1/10W		C205	1-124-907-11	ELECT 10MF	20% 50V
R1331	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W		C206	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V
R1332	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W		C207	1-137-613-11	FILM 0.0018MF	2% 100V
R1333	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W		C208	1-164-005-11	CERAMIC CHIP 0.47MF	25V
R1334	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W		C209	1-164-005-11	CERAMIC CHIP 0.47MF	25V
R1341	1-216-089-00	METAL GLAZE 47K 5% 1/10W		C210	1-164-005-11	CERAMIC CHIP 0.47MF	25V
R1342	1-216-073-00	METAL GLAZE 10K 5% 1/10W		C211	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
R1343	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W		C213	1-163-023-00	CERAMIC CHIP 0.015MF	10% 50V
R1344	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W		C214	1-163-023-00	CERAMIC CHIP 0.015MF	10% 50V
*****				C215	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V
*A-1624-009-A	F1 BOARD, COMPLETE	(KV-E2531B, E2531D, E2931B, E2931D)		C216	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V
*A-1241-086-A	F1 BOARD, COMPLETE	(KV-E3431B, E3431D)		C217	1-124-925-11	ELECT 2.2MF	20% 50V
				C218	1-124-925-11	ELECT 2.2MF	20% 50V
1-533-230-11	HOLDER, FUSE			C219	1-163-011-11	CERAMIC CHIP 0.0015MF	10% 50V
*4-341-751-01	EYELET (EY691, EY692)			C220	1-163-011-11	CERAMIC CHIP 0.0015MF	10% 50V
*4-341-752-01	EYELET			C221	1-124-925-11	ELECT 2.2MF	20% 50V
<CONNECTOR>				C222	1-124-925-11	ELECT 2.2MF	20% 50V
CN0003*1-580-844-11	PIN, CONNECTOR (POWER)			C223	1-137-028-11	FILM 1MF	10% 63V
CN0831*1-695-292-11	PIN, CONNECTOR (POWER)			C224	1-137-028-11	FILM 1MF	10% 63V
<FUSE>				C225	1-164-182-11	CERAMIC CHIP 0.0033MF	10% 50V
F651 $\Delta$ 1-576-232-21	FUSE (H.B.C.) 5A/250V			C226	1-163-007-11	CERAMIC CHIP 680PF	10% 50V
<SWITCH>				C227	1-124-907-11	ELECT 10MF	20% 50V
S651 $\Delta$ 1-571-433-12	SWITCH, PUSH (AC POWER)			C228	1-124-907-11	ELECT 10MF	20% 50V
*****				C229	1-124-478-11	ELECT 100MF	20% 25V
*A-1632-101-A	A BOARD, COMPLETE (KV-E2531B, E2931B)			C230	1-124-478-11	ELECT 100MF	20% 25V
*A-1632-090-A	A BOARD, COMPLETE (KV-E2531D, E2931D)			C231	1-164-346-11	CERAMIC CHIP 1MF	10% 16V
*A-1297-007-A	A BOARD, COMPLETE (KV-E3431B)			C232	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
*A-1297-008-A	A BOARD, COMPLETE (KV-E3431D)			C233	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
4-200-001-01	HOLDER, IC			C234	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
4-201-023-01	SPACER, INSULATING			C235	1-137-134-91	FILM 0.22MF	5% 63V
4-812-134-00	RIVET NYLON, 3.5			C236	1-124-618-11	ELECT 2200MF	20% 35V
<CAPACITOR>				C237	1-124-618-11	ELECT 2200MF	20% 35V
C071	1-124-126-00	ELECT 47MF 20% 10V		C238	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C072	1-124-120-11	ELECT 220MF 20% 16V		C239	1-137-134-91	FILM 0.22MF	5% 63V
C074	1-163-001-11	CERAMIC CHIP 220PF 10% 50V		C240	1-126-233-11	ELECT 22MF	20% 50V
C102	1-126-103-11	ELECT 470MF 20% 16V		C241	1-126-233-11	ELECT 22MF	20% 50V
C103	1-163-031-11	CERAMIC CHIP 0.01MF 50V		C242	1-124-903-11	ELECT 1MF	20% 50V
C104	1-124-910-11	ELECT 47MF 20% 50V		C243	1-163-119-00	CERAMIC CHIP 120PF	5% 50V
C105	1-126-233-11	ELECT 22MF 20% 50V		C244	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C106	1-124-927-11	ELECT 4.7MF 20% 50V		C251	1-126-320-11	ELECT 10MF	20% 16V
C110	1-124-478-11	ELECT 100MF 20% 25V		C301	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C111	1-102-074-00	CERAMIC 0.001MF 10% 50V		C302	1-163-038-00	CERAMIC CHIP 0.1MF	25V
(KV-E2531B, E2931B, E3431B)				C303	1-164-346-11	CERAMIC CHIP 1MF	16V
C120	1-163-031-11	CERAMIC CHIP 0.01MF 50V		C304	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C201	1-137-129-91	FILM 0.033MF 5% 63V		C305	1-163-097-00	CERAMIC CHIP 15PF	5% 50V
C202	1-137-129-91	FILM 0.033MF 5% 63V		C306	1-163-097-00	CERAMIC CHIP 15PF	5% 50V
C203	1-164-005-11	CERAMIC CHIP 0.47MF 25V		C307	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
				C308	1-163-037-11	CERAMIC CHIP 0.022MF	10% 25V
				C309	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
				C310	1-163-038-00	CERAMIC CHIP 0.1MF	25V
				C311	1-163-038-00	CERAMIC CHIP 0.1MF	25V
				C312	1-124-910-11	ELECT 47MF	20% 50V
				C313	1-163-077-00	CERAMIC CHIP 0.1MF	50V
				C314	1-163-038-00	CERAMIC CHIP 0.1MF	25V
				C315	1-124-910-11	ELECT 47MF	20% 50V
				C316	1-163-077-00	CERAMIC CHIP 0.1MF	50V
				C317	1-163-103-00	CERAMIC CHIP 27PF	5% 50V
				C318	1-163-103-00	CERAMIC CHIP 27PF	5% 50V
				C319	1-163-038-00	CERAMIC CHIP 0.1MF	25V
				C320	1-124-910-11	ELECT 47MF	20% 50V
				C321	1-163-038-00	CERAMIC CHIP 0.1MF	25V
				C322	1-126-233-11	ELECT 22MF	20% 50V
				C323	1-163-135-00	CERAMIC CHIP 560PF	5% 50V



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REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
JR226	1-216-296-00	METAL GLAZE	0 5% 1/8W	R229	1-216-039-00	METAL GLAZE	390 5% 1/10W
JR227	1-216-296-00	METAL GLAZE	0 5% 1/8W	R230	1-216-246-00	METAL GLAZE	100K 5% 1/8W
JR228	1-216-296-00	METAL GLAZE	0 5% 1/8W	R231	1-216-097-00	METAL GLAZE	100K 5% 1/10W
JR229	1-216-296-00	METAL GLAZE	0 5% 1/8W	R232	1-216-081-00	METAL GLAZE	22K 5% 1/10W
JR230	1-216-296-00	METAL GLAZE	0 5% 1/8W	R233	1-216-071-00	METAL GLAZE	8.2K 5% 1/10W
JR231	1-216-296-00	METAL GLAZE	0 5% 1/8W	R234	1-216-077-00	METAL GLAZE	15K 5% 1/10W
JR232	1-216-296-00	METAL GLAZE	0 5% 1/8W	R235	1-216-073-00	METAL GLAZE	10K 5% 1/10W
JR233	1-216-296-00	METAL GLAZE	0 5% 1/8W	R236	1-216-081-00	METAL GLAZE	22K 5% 1/10W
JR234	1-216-296-00	METAL GLAZE	0 5% 1/8W	R237	1-216-025-00	METAL GLAZE	100 5% 1/10W
JR235	1-216-296-00	METAL GLAZE	0 5% 1/8W	R238	1-216-025-00	METAL GLAZE	100 5% 1/10W
JR236	1-216-296-00	METAL GLAZE	0 5% 1/8W	R239	1-216-073-00	METAL GLAZE	10K 5% 1/10W
JR237	1-216-296-00	METAL GLAZE	0 5% 1/8W	R240	1-216-089-00	METAL GLAZE	47K 5% 1/10W
JR238	1-216-296-00	METAL GLAZE	0 5% 1/8W	R241	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
JR239	1-216-296-00	METAL GLAZE	0 5% 1/8W	R242	1-216-218-00	METAL GLAZE	6.8K 5% 1/8W
JR240	1-216-296-00	METAL GLAZE	0 5% 1/8W	R243	1-249-438-11	CARBON	56K 5% 1/4W
JR241	1-216-296-00	METAL GLAZE	0 5% 1/8W	R244	1-216-089-00	METAL GLAZE	47K 5% 1/10W
JR242	1-216-296-00	METAL GLAZE	0 5% 1/8W	R245	1-216-089-00	METAL GLAZE	47K 5% 1/10W
JR243	1-216-296-00	METAL GLAZE	0 5% 1/8W	R247	1-216-073-00	METAL GLAZE	10K 5% 1/10W
JR244	1-216-296-00	METAL GLAZE	0 5% 1/8W	R248	1-216-073-00	METAL GLAZE	10K 5% 1/10W
JR245	1-216-296-00	METAL GLAZE	0 5% 1/8W	R249	1-216-045-00	METAL GLAZE	680 5% 1/10W
JR247	1-216-296-00	METAL GLAZE	0 5% 1/8W	R250	1-216-095-00	METAL GLAZE	82K 5% 1/10W
JR248	1-216-296-00	METAL GLAZE	0 5% 1/8W	R251	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
JR250	1-216-296-00	METAL GLAZE	0 5% 1/8W	R252	1-216-073-00	METAL GLAZE	10K 5% 1/10W
JR251	1-216-296-00	METAL GLAZE	0 5% 1/8W	R253	1-216-073-00	METAL GLAZE	10K 5% 1/10W
JR252	1-216-296-00	METAL GLAZE	0 5% 1/8W	R254	1-216-252-00	METAL GLAZE	180K 5% 1/8W
JR253	1-216-296-00	METAL GLAZE	0 5% 1/8W	R255	1-216-252-00	METAL GLAZE	180K 5% 1/8W
R071	1-216-041-00	METAL GLAZE	470 5% 1/10W	R256	1-249-409-11	CARBON	220 5% 1/4W
R072	1-216-033-00	METAL GLAZE	220 5% 1/10W	R257	1-249-409-11	CARBON	220 5% 1/4W
R073	1-216-033-00	METAL GLAZE	220 5% 1/10W	R259	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R074	1-216-198-00	METAL GLAZE	1K 5% 1/8W	R260	1-216-198-00	METAL GLAZE	1K 5% 1/8W
R076	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R301	1-216-029-00	METAL GLAZE	150 5% 1/10W
R077	1-216-025-00	METAL GLAZE	100 5% 1/10W	R302	1-216-029-00	METAL GLAZE	150 5% 1/10W
R101	1-216-025-00	METAL GLAZE	100 5% 1/10W	R303	1-216-174-00	METAL GLAZE	100 5% 1/8W
R102	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R304	1-216-174-00	METAL GLAZE	100 5% 1/8W
R103	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W	R305	1-216-035-00	METAL GLAZE	270 5% 1/10W
R105	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R306	1-216-035-00	METAL GLAZE	270 5% 1/10W
R108	1-216-230-00	METAL GLAZE	22K 5% 1/8W	R307	1-216-075-00	METAL GLAZE	12K 5% 1/10W
R115	1-216-210-00	METAL GLAZE	3.3K 5% 1/8W	R308	1-216-121-00	METAL GLAZE	1K 5% 1/10W
R201	1-216-653-11	METAL CHIP	1.2K 0.50% 1/10W	R309	1-216-001-00	METAL GLAZE	10 5% 1/10W
R202	1-216-653-11	METAL CHIP	1.2K 0.50% 1/10W	R310	1-216-001-00	METAL GLAZE	10 5% 1/10W
R203	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W	R311	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R204	1-216-091-00	METAL GLAZE	56K 5% 1/10W	R312	1-249-407-11	CARBON	150 5% 1/4W
R205	1-216-071-00	METAL GLAZE	8.2K 5% 1/10W	R313	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R206	1-216-071-00	METAL GLAZE	8.2K 5% 1/10W	R314	1-249-409-11	CARBON	220 5% 1/4W
R207	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R315	1-249-409-11	CARBON	220 5% 1/4W
R208	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R316	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R209	1-249-377-91	CARBON	0.47 5% 1/4W F	R317	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R210	1-247-734-11	CARBON	39 5% 1/2W	R318	1-216-029-00	METAL GLAZE	150 5% 1/10W
R211	1-247-734-11	CARBON	39 5% 1/2W	R319	1-249-407-11	CARBON	150 5% 1/4W
R212	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R320	1-216-174-00	METAL GLAZE	100 5% 1/8W
R213	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R321	1-216-039-00	METAL GLAZE	390 5% 1/10W
R214	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R322	1-216-029-00	METAL GLAZE	150 5% 1/10W
R215	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R324	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R216	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R325	1-216-041-00	METAL GLAZE	470 5% 1/10W
R217	1-216-047-00	METAL GLAZE	820 5% 1/10W	R326	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R218	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R328	1-216-025-00	METAL GLAZE	100 5% 1/10W
R221	1-212-849-00	FUSIBLE	4.7 5% 1/4W F	R329	1-216-023-00	METAL GLAZE	82 5% 1/10W
R222	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R330	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W
R223	1-216-047-00	METAL GLAZE	820 5% 1/10W	R331	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R224	1-249-433-11	CARBON	22K 5% 1/4W	R333	1-216-182-00	METAL GLAZE	220 5% 1/8W
R225	1-212-849-00	FUSIBLE	4.7 5% 1/4W F	R334	1-216-182-00	METAL GLAZE	220 5% 1/8W
R226	1-249-412-11	CARBON	390 5% 1/4W	R339	1-216-025-00	METAL GLAZE	100 5% 1/10W
R227	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R340	1-216-025-00	METAL GLAZE	100 5% 1/10W
R228	1-216-081-00	METAL GLAZE	22K 5% 1/10W				



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REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
IC301	8-759-073-15	IC TDA9145		JR103	1-216-295-00	METAL GLAZE 0 5% 1/10W	
IC302	8-759-505-39	IC TDA4660V2		JR104	1-216-295-00	METAL GLAZE 0 5% 1/10W	
IC304	8-752-056-54	IC CXA1587S		JR105	1-216-295-00	METAL GLAZE 0 5% 1/10W	
IC401	8-752-062-86	IC CXA1545AS		JR107	1-216-295-00	METAL GLAZE 0 5% 1/10W	
IC402	8-759-073-00	IC TEA2114		JR108	1-216-295-00	METAL GLAZE 0 5% 1/10W	
IC681	8-759-072-98	IC TDA8138A		JR109	1-216-295-00	METAL GLAZE 0 5% 1/10W	
IC683	8-759-982-10	IC RC7809FA		JR110	1-216-295-00	METAL GLAZE 0 5% 1/10W	
IC684	8-759-982-10	IC RC7809FA		JR111	1-216-295-00	METAL GLAZE 0 5% 1/10W	
<IF BLOCK>				JR112	1-216-295-00	METAL GLAZE 0 5% 1/10W	
IFB101	1-466-735-11	IF BLOCK (IFH-389F)		JR113	1-216-295-00	METAL GLAZE 0 5% 1/10W	
		(KV-E2531B,E2931B,E3431B)		JR114	1-216-295-00	METAL GLAZE 0 5% 1/10W	
	1-466-733-11	IF BLOCK (IFH-389)		JR115	1-216-295-00	METAL GLAZE 0 5% 1/10W	
		(KV-E2531D,E2931D,E3431D)		JR116	1-216-295-00	METAL GLAZE 0 5% 1/10W	
<COIL>				JR117	1-216-295-00	METAL GLAZE 0 5% 1/10W	
L101	1-412-546-21	INDUCTOR 560UH		JR118	1-216-295-00	METAL GLAZE 0 5% 1/10W	
L102	1-408-413-00	INDUCTOR 22UH		JR119	1-216-295-00	METAL GLAZE 0 5% 1/10W	
L201	1-407-500-00	INDUCTOR 4.7MMH		JR120	1-216-295-00	METAL GLAZE 0 5% 1/10W	
L306	1-408-405-00	INDUCTOR 4.7UH		JR121	1-216-295-00	METAL GLAZE 0 5% 1/10W	
L308	1-408-417-00	INDUCTOR 47UH		JR122	1-216-295-00	METAL GLAZE 0 5% 1/10W	
L610	1-412-539-21	INDUCTOR 150UH		JR123	1-216-295-00	METAL GLAZE 0 5% 1/10W	
L611	1-412-539-21	INDUCTOR 150UH		JR124	1-216-295-00	METAL GLAZE 0 5% 1/10W	
<TRANSISTOR>				JR125	1-216-295-00	METAL GLAZE 0 5% 1/10W	
Q071	8-729-901-05	TRANSISTOR DTA124EK		JR127	1-216-295-00	METAL GLAZE 0 5% 1/10W	
Q101	8-729-216-22	TRANSISTOR 2SA1162-G		JR128	1-216-295-00	METAL GLAZE 0 5% 1/10W	
Q102	8-729-901-00	TRANSISTOR DTC124EK		JR129	1-216-295-00	METAL GLAZE 0 5% 1/10W	
Q103	8-729-900-53	TRANSISTOR DTC114EK		JR131	1-216-295-00	METAL GLAZE 0 5% 1/10W	
Q201	8-729-120-28	TRANSISTOR 2SC1623-L5L6		JR132	1-216-295-00	METAL GLAZE 0 5% 1/10W	
Q202	8-729-120-28	TRANSISTOR 2SC1623-L5L6		JR133	1-216-295-00	METAL GLAZE 0 5% 1/10W	
Q203	8-729-120-28	TRANSISTOR 2SC1623-L5L6		JR134	1-216-295-00	METAL GLAZE 0 5% 1/10W	
Q204	8-729-216-22	TRANSISTOR 2SA1162-G		JR136	1-216-295-00	METAL GLAZE 0 5% 1/10W	
Q205	8-729-216-22	TRANSISTOR 2SA1162-G		JR137	1-216-295-00	METAL GLAZE 0 5% 1/10W	
Q206	8-729-216-22	TRANSISTOR 2SA1162-G		JR138	1-216-295-00	METAL GLAZE 0 5% 1/10W	
Q207	8-729-120-28	TRANSISTOR 2SC1623-L5L6		JR140	1-216-295-00	METAL GLAZE 0 5% 1/10W	
Q209	8-729-120-28	TRANSISTOR 2SC1623-L5L6		JR141	1-216-295-00	METAL GLAZE 0 5% 1/10W	
Q301	8-729-901-00	TRANSISTOR DTC124EK		JR142	1-216-295-00	METAL GLAZE 0 5% 1/10W	
Q302	8-729-216-22	TRANSISTOR 2SA1162-G		JR143	1-216-295-00	METAL GLAZE 0 5% 1/10W	
Q303	8-729-216-22	TRANSISTOR 2SA1162-G		JR144	1-216-295-00	METAL GLAZE 0 5% 1/10W	
Q304	8-729-900-53	TRANSISTOR DTC114EK		JR150	1-216-295-00	METAL GLAZE 0 5% 1/10W	
Q305	8-729-901-01	TRANSISTOR DTC144EK		JR201	1-216-296-00	METAL GLAZE 0 5% 1/8W	
Q306	8-729-216-22	TRANSISTOR 2SA1162-G		JR202	1-216-296-00	METAL GLAZE 0 5% 1/8W	
Q308	8-729-216-22	TRANSISTOR 2SA1162-G		JR203	1-216-296-00	METAL GLAZE 0 5% 1/8W	
Q309	8-729-931-02	TRANSISTOR 2SC2413K-Q		JR204	1-216-296-00	METAL GLAZE 0 5% 1/8W	
Q311	8-729-901-06	TRANSISTOR DTA144EK-T146		JR205	1-216-296-00	METAL GLAZE 0 5% 1/8W	
Q312	8-729-900-53	TRANSISTOR DTC114EK		JR206	1-216-296-00	METAL GLAZE 0 5% 1/8W	
Q401	8-729-120-28	TRANSISTOR 2SC1623-L5L6		JR207	1-216-296-00	METAL GLAZE 0 5% 1/8W	
Q402	8-729-120-28	TRANSISTOR 2SC1623-L5L6		JR208	1-216-296-00	METAL GLAZE 0 5% 1/8W	
Q403	8-729-120-28	TRANSISTOR 2SC1623-L5L6		JR209	1-216-296-00	METAL GLAZE 0 5% 1/8W	
Q404	8-729-120-28	TRANSISTOR 2SC1623-L5L6		JR210	1-216-296-00	METAL GLAZE 0 5% 1/8W	
Q581	8-729-120-28	TRANSISTOR 2SC1623-L5L6		JR211	1-216-296-00	METAL GLAZE 0 5% 1/8W	
Q582	8-729-216-22	TRANSISTOR 2SA1162-G		JR212	1-216-296-00	METAL GLAZE 0 5% 1/8W	
Q610	8-729-140-97	TRANSISTOR 2SB734-34		JR213	1-216-296-00	METAL GLAZE 0 5% 1/8W	
Q611	8-729-900-53	TRANSISTOR DTC114EK		JR214	1-216-296-00	METAL GLAZE 0 5% 1/8W	
Q683	8-729-140-96	TRANSISTOR 2SD774-34		JR215	1-216-296-00	METAL GLAZE 0 5% 1/8W	
<RESISTOR>				JR216	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR101	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR217	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR102	1-216-295-00	METAL GLAZE 0 5% 1/10W		JR218	1-216-296-00	METAL GLAZE 0 5% 1/8W	
				JR219	1-216-296-00	METAL GLAZE 0 5% 1/8W	
				JR220	1-216-296-00	METAL GLAZE 0 5% 1/8W	
				JR221	1-216-296-00	METAL GLAZE 0 5% 1/8W	
				JR222	1-216-296-00	METAL GLAZE 0 5% 1/8W	
				JR223	1-216-296-00	METAL GLAZE 0 5% 1/8W	
				JR224	1-216-296-00	METAL GLAZE 0 5% 1/8W	
				JR225	1-216-296-00	METAL GLAZE 0 5% 1/8W	




IF

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
C161	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	JR2	1-216-295-00	METAL GLAZE 0 5% 1/10W
C162	1-164-222-11	CERAMIC CHIP 0.22MF		25V	JR3	1-216-296-00	METAL GLAZE 0 5% 1/8W
C163	1-164-346-11	CERAMIC CHIP 1MF		16V	JR4	1-216-295-00	METAL GLAZE 0 5% 1/10W
C164	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V	JR7	1-216-295-00	METAL GLAZE 0 5% 1/10W
C165	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V	JR8	1-216-295-00	METAL GLAZE 0 5% 1/10W
C166	1-124-477-11	ELECT 47MF	20%	16V	JR9	1-216-296-00	METAL GLAZE 0 5% 1/8W
C167	1-163-213-00	CERAMIC CHIP 0.0022MF	5%	50V	JR11	1-216-296-00	METAL GLAZE 0 5% 1/8W
C168	1-164-346-11	CERAMIC CHIP 1MF		16V	JR14	1-216-296-00	METAL GLAZE 0 5% 1/8W
C170	1-124-477-11	ELECT 47MF	20%	16V	JR16	1-216-295-00	METAL GLAZE 0 5% 1/10W
C171	1-124-477-11	ELECT 47MF	20%	16V	JR18	1-216-295-00	METAL GLAZE 0 5% 1/10W
C172	1-124-477-11	ELECT 47MF	20%	16V	JR19	1-216-296-00	METAL GLAZE 0 5% 1/8W
C173	1-124-477-11	ELECT 47MF	20%	16V	JR20	1-216-296-00	METAL GLAZE 0 5% 1/8W
<FILTER>				JR21	1-216-296-00	METAL GLAZE 0 5% 1/8W	
CF2	1-527-839-00	FILTER, CERAMIC		JR23	1-216-296-00	METAL GLAZE 0 5% 1/8W	
CF3	1-527-840-00	FILTER, CERAMIC		JR24	1-216-296-00	METAL GLAZE 0 5% 1/8W	
CF4	1-567-570-11	FILTER, CERAMIC		JR25	1-216-296-00	METAL GLAZE 0 5% 1/8W	
SWF1	1-579-658-11	FILTER, SAWTOOTH WAVE		JR29	1-216-296-00	METAL GLAZE 0 5% 1/8W	
<CONNECTOR>				JR30	1-216-295-00	METAL GLAZE 0 5% 1/10W	
CN1	*1-506-913-11	PIN, CONNECTOR 10P		JR33	1-216-295-00	METAL GLAZE 0 5% 1/10W	
CN2	*1-506-913-11	PIN, CONNECTOR 10P		JR38	1-216-296-00	METAL GLAZE 0 5% 1/8W	
<TRIMMER>				JR39	1-216-296-00	METAL GLAZE 0 5% 1/8W	
CT1	1-404-801-11	TRAP, CERAMIC		JR40	1-216-296-00	METAL GLAZE 0 5% 1/8W	
<DIODE>				R101	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
D161	8-719-400-18	DIODE MA152WK		R102	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
<IC>				R103	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
IC1	8-759-070-76	IC M52308SP		R104	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
IC2	8-759-070-71	IC TDA9820		R106	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
IC3	8-759-514-54	IC BA7046		R107	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
<COIL>				R108	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
L101	1-408-421-00	INDUCTOR 100UH		R110	1-216-041-00	METAL GLAZE 470 5% 1/10W	
L102	1-408-419-00	INDUCTOR 68UH		R113	1-216-031-00	METAL GLAZE 180 5% 1/10W	
L103	1-408-419-00	INDUCTOR 68UH		R114	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
L104	1-408-408-00	INDUCTOR 8.2UH		R115	1-216-027-00	METAL GLAZE 120 5% 1/10W	
L121	1-408-413-00	INDUCTOR 22UH		R116	1-216-101-00	METAL GLAZE 150K 5% 1/10W	
L122	1-408-420-00	INDUCTOR 82UH		R117	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
L142	1-410-790-41	INDUCTOR 0.56UH		R118	1-216-117-00	METAL GLAZE 680K 5% 1/10W	
L151	1-408-419-00	INDUCTOR 68UH		R119	1-216-240-00	METAL GLAZE 56K 5% 1/8W	
L161	1-408-419-00	INDUCTOR 68UH		R120	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
<TRANSISTOR>				R121	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
Q101	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R122	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
Q102	8-729-216-22	TRANSISTOR 2SA1162-G		R123	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
Q121	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R124	1-216-041-00	METAL GLAZE 470 5% 1/10W	
Q122	8-729-216-22	TRANSISTOR 2SA1162-G		R125	1-216-041-00	METAL GLAZE 470 5% 1/10W	
Q161	8-729-216-22	TRANSISTOR 2SA1162-G		R127	1-216-047-00	METAL GLAZE 820 5% 1/10W	
Q170	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R130	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
Q171	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R131	1-216-025-00	METAL GLAZE 100 5% 1/10W	
Q172	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R132	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
Q173	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R133	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
<RESISTOR>				R134	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
				R135	1-216-198-00	METAL GLAZE 1K 5% 1/8W	
				R150	1-216-043-00	METAL GLAZE 560 5% 1/10W	
				R151	1-216-043-00	METAL GLAZE 560 5% 1/10W	
				R152	1-216-043-00	METAL GLAZE 560 5% 1/10W	
				R153	1-216-025-00	METAL GLAZE 100 5% 1/10W	
				R154	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
				R155	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
				R156	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
				R157	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
				R159	1-216-107-00	METAL GLAZE 270K 5% 1/10W	
				R160	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
				R161	1-216-100-00	METAL CHIP 130K 0.50% 1/10W	
				R162	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
				R163	1-216-113-00	METAL GLAZE 470K 5% 1/10W	



The components identified by shading and mark **Δ** are critical for safety.  
Replace only with part number specified.

Les composants identifiés par une trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

**KV-E2531D/E2931D/E3431D**  
**KV-E2531B/E2931B/E3431B**  
 RM-830 RM-830 RM-832

**A IF**

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
R341	1-216-025-00	METAL GLAZE	100 5% 1/10W	R586	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W
R342	1-216-033-00	METAL GLAZE	220 5% 1/10W	R587	1-216-045-00	METAL GLAZE	680 5% 1/10W
R343	1-216-022-00	METAL GLAZE	75 5% 1/10W	R588	1-216-101-00	METAL GLAZE	150K 5% 1/10W
R344	1-216-022-00	METAL GLAZE	75 5% 1/10W	R589	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R345	1-216-171-00	METAL GLAZE	75 5% 1/8W	R590	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R346	1-216-022-00	METAL GLAZE	75 5% 1/10W	R591	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R347	1-216-083-00	METAL GLAZE	27K 5% 1/10W	R592	1-216-232-00	METAL GLAZE	27K 5% 1/8W
R348	1-216-029-00	METAL GLAZE	150 5% 1/10W	R593	1-216-063-00	METAL GLAZE	3.9K 5% 1/10W
R349	1-216-029-00	METAL GLAZE	150 5% 1/10W	R594	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W
R350	1-216-178-00	METAL GLAZE	150 5% 1/8W	R595	1-216-643-11	METAL CHIP	470 0.50% 1/10W
R351	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R596	1-216-670-11	METAL CHIP	6.2K 0.50% 1/10W
R352	1-216-033-00	METAL GLAZE	220 5% 1/10W	R597	1-216-230-00	METAL GLAZE	22K 5% 1/8W
R354	1-216-033-00	METAL GLAZE	220 5% 1/10W	R600	1-216-190-00	METAL GLAZE	470 5% 1/8W
R355	1-216-033-00	METAL GLAZE	220 5% 1/10W	R616	1-216-035-00	METAL GLAZE	270 5% 1/10W
R356	1-216-033-00	METAL GLAZE	220 5% 1/10W	R628	1-249-411-11	CARBON	330 5% 1/4W
R357	1-216-041-00	METAL GLAZE	470 5% 1/10W	R681	1-216-397-11	METAL OXIDE	4.7 5% 3W F
R358	1-216-031-00	METAL GLAZE	180 5% 1/10W	R684	1-216-047-00	METAL GLAZE	820 5% 1/10W
R359	1-216-033-00	METAL GLAZE	220 5% 1/10W	R685	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R360	1-216-033-00	METAL GLAZE	220 5% 1/10W				
R361	1-216-033-00	METAL GLAZE	220 5% 1/10W				
R362	1-216-077-00	METAL GLAZE	15K 5% 1/10W				
R365	1-216-073-00	METAL GLAZE	10K 5% 1/10W				
R366	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W				
R367	1-216-063-00	METAL GLAZE	3.9K 5% 1/8W				
R368	1-216-033-00	METAL GLAZE	220 5% 1/10W				
R369	1-216-033-00	METAL GLAZE	220 5% 1/10W				
R370	1-216-033-00	METAL GLAZE	220 5% 1/10W				
R371	1-216-033-00	METAL GLAZE	220 5% 1/10W				
R373	1-216-017-00	METAL GLAZE	47 5% 1/10W				
R376	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W				
R377	1-216-051-00	METAL GLAZE	1.2K 5% 1/10W				
R378	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W				
R379	1-216-206-00	METAL GLAZE	2.2K 5% 1/8W				
R380	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W				
R401	1-216-171-00	METAL GLAZE	75 5% 1/8W				
R402	1-216-158-00	METAL GLAZE	22 5% 1/8W				
R403	1-216-025-00	METAL GLAZE	100 5% 1/10W				
R404	1-216-158-00	METAL GLAZE	22 5% 1/8W				
R405	1-216-025-00	METAL GLAZE	100 5% 1/10W				
R406	1-216-158-00	METAL GLAZE	22 5% 1/8W				
R407	1-216-025-00	METAL GLAZE	100 5% 1/10W				
R408	1-216-093-00	METAL GLAZE	68K 5% 1/10W				
R410	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W				
R411	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W				
R412	1-216-022-00	METAL GLAZE	75 5% 1/10W				
R413	1-216-022-00	METAL GLAZE	75 5% 1/10W				
R414	1-216-022-00	METAL GLAZE	75 5% 1/10W				
R416	1-216-113-00	METAL GLAZE	470K 5% 1/10W				
R417	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W				
R419	1-216-113-00	METAL GLAZE	470K 5% 1/10W				
R420	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W				
R423	1-216-015-00	METAL GLAZE	39 5% 1/10W				
R424	1-216-025-00	METAL GLAZE	100 5% 1/10W				
R425	1-216-025-00	METAL GLAZE	100 5% 1/10W				
R426	1-216-025-00	METAL GLAZE	100 5% 1/10W				
R427	1-216-025-00	METAL GLAZE	100 5% 1/10W				
R428	1-249-393-11	CARBON	10 5% 1/4W F				
R572	1-216-198-00	METAL GLAZE	1K 5% 1/8W				
R574	1-216-041-00	METAL GLAZE	470 5% 1/10W				
R575	1-216-037-00	METAL GLAZE	330 5% 1/10W				
R581	1-216-033-00	METAL GLAZE	220 5% 1/10W				
R582	1-216-037-00	METAL GLAZE	330 5% 1/10W				
R583	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W				
R584	1-216-039-00	METAL GLAZE	390 5% 1/10W				



**IF**

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
L5	1-408-419-00	INDUCTOR 68UH		R49	1-216-049-00	METAL GLAZE 1K 5%	1/10W
L7	1-408-406-00	INDUCTOR 5.6UH		R53	1-216-083-00	METAL GLAZE 27K 5%	1/10W
L9	1-408-419-00	INDUCTOR 68UH		R54	1-216-043-00	METAL GLAZE 560 5%	1/10W
L71	1-408-419-00	INDUCTOR 68UH		R55	1-216-043-00	METAL GLAZE 560 5%	1/10W
L101	1-408-399-00	INDUCTOR 1.5UH		R56	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
L121	1-408-407-00	INDUCTOR 6.8UH		R57	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
<TRANSISTOR>				R58	1-216-041-00	METAL GLAZE 470 5%	1/10W
Q1	8-729-901-59	TRANSISTOR BF199		R59	1-216-043-00	METAL GLAZE 560 5%	1/10W
Q4	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R60	1-216-043-00	METAL GLAZE 560 5%	1/10W
Q5	8-729-115-10	TRANSISTOR 2SK105A-10		R61	1-216-295-00	METAL GLAZE 0 5%	1/10W
Q6	8-729-900-52	TRANSISTOR DTC114YK		R63	1-216-043-00	METAL GLAZE 560 5%	1/10W
Q7	8-729-216-22	TRANSISTOR 2SA1162-G		R71	1-216-079-00	METAL GLAZE 18K 5%	1/10W
Q8	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R72	1-216-079-00	METAL GLAZE 18K 5%	1/10W
Q10	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R73	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q11	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R74	1-216-079-00	METAL GLAZE 18K 5%	1/10W
Q12	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R75	1-216-079-00	METAL GLAZE 18K 5%	1/10W
Q13	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R76	1-216-025-00	METAL GLAZE 100 5%	1/10W
Q14	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R77	1-216-174-00	METAL GLAZE 100 5%	1/8W
Q15	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R81	1-216-095-00	METAL GLAZE 82K 5%	1/10W
Q16	8-729-216-22	TRANSISTOR 2SA1162-G		R82	1-216-121-00	METAL GLAZE 1M 5%	1/10W
Q101	8-729-104-80	TRANSISTOR 2SC3355		R83	1-216-025-00	METAL GLAZE 100 5%	1/10W
Q121	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R84	1-216-085-00	METAL GLAZE 33K 5%	1/10W
<RESISTOR>				R85	1-216-085-00	METAL GLAZE 33K 5%	1/10W
JR2	1-216-295-00	METAL GLAZE 0 5%	1/10W	R86	1-216-689-11	METAL GLAZE 39K 5%	1/10W
JR3	1-216-296-00	METAL GLAZE 0 5%	1/8W	R87	1-216-095-00	METAL GLAZE 82K 5%	1/10W
JR5	1-216-296-00	METAL GLAZE 0 5%	1/8W	R88	1-216-095-00	METAL GLAZE 82K 5%	1/10W
R1	1-216-025-00	METAL GLAZE 100 5%	1/10W	R89	1-216-095-00	METAL GLAZE 82K 5%	1/10W
R2	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R90	1-216-075-00	METAL GLAZE 12K 5%	1/10W
R3	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R91	1-216-295-00	METAL GLAZE 0 5%	1/10W
R4	1-216-041-00	METAL GLAZE 470 5%	1/10W	R92	1-216-075-00	METAL GLAZE 12K 5%	1/10W
R5	1-216-021-00	METAL GLAZE 68 5%	1/10W	R93	1-216-075-00	METAL GLAZE 12K 5%	1/10W
R6	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W	R94	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
R8	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W	R95	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
R9	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W	R96	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
R10	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W	R97	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R11	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W	R98	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R24	1-216-280-00	METAL GLAZE 2.7M 5%	1/8W	R99	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R25	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W	R100	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R26	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W	R102	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R27	1-216-266-00	METAL GLAZE 680K 5%	1/8W	R103	1-216-063-00	METAL GLAZE 3.9K 5%	1/10W
R28	1-216-075-00	METAL GLAZE 12K 5%	1/10W	R104	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R29	1-216-035-00	METAL GLAZE 270 5%	1/10W	R105	1-216-033-00	METAL GLAZE 220 5%	1/10W
R30	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R121	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R31	1-216-017-00	METAL GLAZE 47 5%	1/10W	R122	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R32	1-216-043-00	METAL GLAZE 560 5%	1/10W	R123	1-216-041-00	METAL GLAZE 470 5%	1/10W
R33	1-216-037-00	METAL GLAZE 330 5%	1/10W	R124	1-216-041-00	METAL GLAZE 470 5%	1/10W
R34	1-216-252-00	METAL GLAZE 180K 5%	1/8W	R125	1-216-041-00	METAL GLAZE 470 5%	1/10W
R35	1-216-035-00	METAL GLAZE 270 5%	1/10W	R301	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R36	1-216-029-00	METAL GLAZE 150 5%	1/10W	R302	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R37	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R303	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R38	1-216-099-00	METAL GLAZE 120K 5%	1/10W	R304	1-216-037-00	METAL GLAZE 330 5%	1/10W
R39	1-216-089-00	METAL GLAZE 47K 5%	1/10W	R305	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R40	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R306	1-216-025-00	METAL GLAZE 100 5%	1/10W
R42	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W	R307	1-216-037-00	METAL GLAZE 330 5%	1/10W
R43	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W	R308	1-216-037-00	METAL GLAZE 330 5%	1/10W
R44	1-216-027-00	METAL GLAZE 120 5%	1/10W	<VARIABLE RESISTOR>			
R45	1-216-041-00	METAL GLAZE 470 5%	1/10W	RV2	1-241-120-11	RES, ADJ, CARBON 2.2K	
R46	1-216-031-00	METAL GLAZE 180 5%	1/10W	<TRANSFORMER>			
R47	1-216-075-00	METAL GLAZE 12K 5%	1/10W	T1	1-404-806-21	COIL	
R48	1-216-081-00	METAL GLAZE 22K 5%	1/10W				



REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
R164	1-216-113-00	METAL GLAZE 470K 5%	1/10W	C35	1-124-925-11	ELECT 2.2MF 20%	50V
R165	1-216-081-00	METAL GLAZE 22K 5%	1/10W	C36	1-124-477-11	ELECT 47MF 20%	16V
R166	1-216-049-00	METAL GLAZE 1K 5%	1/10W	C37	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V
R167	1-216-073-00	METAL GLAZE 10K 5%	1/10W	C38	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V
R168	1-216-113-00	METAL GLAZE 470K 5%	1/10W	C40	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V
R169	1-216-049-00	METAL GLAZE 1K 5%	1/10W	C71	1-124-477-11	ELECT 47MF 20%	16V
R170	1-216-083-00	METAL GLAZE 27K 5%	1/10W	C72	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V
R171	1-216-075-00	METAL GLAZE 12K 5%	1/10W	C80	1-124-477-11	ELECT 47MF 20%	16V
R172	1-216-095-00	METAL GLAZE 82K 5%	1/10W	C83	1-124-477-11	ELECT 47MF 20%	16V
R173	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W	C84	1-124-477-11	ELECT 47MF 20%	16V
R174	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W	C85	1-124-477-11	ELECT 47MF 20%	16V
R175	1-216-083-00	METAL GLAZE 27K 5%	1/10W	C86	1-124-477-11	ELECT 47MF 20%	16V
R176	1-216-075-00	METAL GLAZE 12K 5%	1/10W	C87	1-124-477-11	ELECT 47MF 20%	16V
R177	1-216-095-00	METAL GLAZE 82K 5%	1/10W	C91	1-163-229-11	CERAMIC CHIP 12PF 5%	50V
R178	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W	C95	1-164-337-11	CERAMIC CHIP 2.2MF 16V	
R179	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W	C101	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V
R180	1-216-037-00	METAL GLAZE 330 5%	1/10W	C102	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V
R181	1-216-037-00	METAL GLAZE 330 5%	1/10W	C104	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V
<VARIABLE RESISTOR>				C105	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V
RV1	1-241-121-11	RES, ADJ, CARBON 4.7K		C106	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V
<TRANSFORMER>				C121	1-126-176-11	ELECT 220MF 20%	10V
T4	1-416-017-11	COIL, IF		C122	1-163-119-00	CERAMIC CHIP 120PF 5%	50V
T5		COIL, IF		<FILTER>			
*****				CF1	1-527-839-00	FILTER, CERAMIC	
1-466-735-11	IF BLOCK (IFH-389F)			CF2	1-567-569-11	FILTER, CERAMIC	
*****				CF3	1-527-840-00	FILTER, CERAMIC	
(KV-E2531B, E2931B, E3431B)				CF4	1-567-570-11	FILTER, CERAMIC	
<CAPACITOR>				SWF1	1-579-662-11	FILTER, SURFACE WAVE	
C1	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V	SWF3	1-404-711-11	SAWF	
C2	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V	SWF4	1-579-660-11	FILTER, SAWTOOTH WAVE	
C3	1-124-903-11	ELECT 1MF 20%	50V	<CONNECTOR>			
C4	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V	CN1	*1-506-913-11	PIN, CONNECTOR 10P	
C5	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V	CN2	*1-506-913-11	PIN, CONNECTOR 10P	
C6	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V	<TRIMMER>			
C7	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V	CT1	1-404-801-11	TRAP, CERAMIC	
C8	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V	CT2	1-409-429-11	TRAP, CERAMIC	
C9	1-126-233-11	ELECT 22MF 20%	25V	CV1	1-141-245-00	CAP, TRIMMER	
C10	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V	CV2	1-141-245-00	CAP, TRIMMER	
C11	1-124-477-11	ELECT 47MF 20%	16V	CV3	1-141-304-21	TRIMMER, CERAMIC	
C13	1-163-059-00	CERAMIC CHIP 0.01MF 10%	50V	<DIODE>			
C14	1-124-477-11	ELECT 47MF 20%	16V	D7	8-719-421-57	DIODE MA73-TX	
C15	1-124-903-11	ELECT 1MF 20%	50V	D8	8-719-421-57	DIODE MA73-TX	
C16	1-163-061-00	CERAMIC CHIP 0.015MF 10%	50V	D9	8-719-421-57	DIODE MA73-TX	
C17	1-162-638-11	CERAMIC CHIP 1MF 16V		<IC>			
C18	1-162-638-11	CERAMIC CHIP 1MF 16V		IC1	8-759-070-75	IC M52312SP	
C19	1-163-141-00	CERAMIC CHIP 0.001MF 5%	50V	IC2	8-759-070-71	IC TDA9820	
C20	1-124-902-00	ELECT 0.47MF 20%	50V	IC3	8-759-979-62	IC PCF8574	
C21	1-124-903-11	ELECT 1MF 20%	50V	<COIL>			
C22	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V	L1	1-408-419-00	INDUCTOR 68UH	
C23	1-124-902-00	ELECT 0.47MF 20%	50V	L2	1-408-419-00	INDUCTOR 68UH	
C24	1-164-506-11	CERAMIC CHIP 4.7MF 16V		L3	1-408-407-00	INDUCTOR 6.8UH	
C25	1-124-477-11	ELECT 47MF 20%	16V	L4	1-408-419-00	INDUCTOR 68UH	
C26	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V				
C27	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V				
C28	1-124-477-11	ELECT 47MF 20%	16V				
C33	1-124-907-11	ELECT 10MF 20%	50V				
C34	1-124-907-11	ELECT 10MF 20%	50V				



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REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
C11	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V			
C12	1-163-127-00	CERAMIC CHIP 270PF	5%	50V			
C13	1-163-117-00	CERAMIC CHIP 100PF	5%	50V			
C14	1-163-097-00	CERAMIC CHIP 15PF	5%	50V			
C15	1-163-103-00	CERAMIC CHIP 27PF	5%	50V			
C16	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V			
C17	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V			
C18	1-163-093-00	CERAMIC CHIP 10PF	5%	50V			
C19	1-163-089-00	CERAMIC CHIP 6PF	0.25PF	50V			
C20	1-163-125-00	CERAMIC CHIP 220PF	5%	50V			
C21	1-163-833-00	CERAMIC CHIP 0.068MF		25V			
C22	1-163-117-00	CERAMIC CHIP 100PF	5%	50V			
C23	1-163-210-00	CERAMIC CHIP 0.0016MF	5%	50V			
C24	1-164-505-11	CERAMIC CHIP 2.2MF		16V			
C25	1-164-505-11	CERAMIC CHIP 2.2MF		16V			
C26	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V			
C28	1-163-137-00	CERAMIC CHIP 680PF	5%	50V			
C30	1-137-033-11	FILM 0.33MF	10%	100V			
C32	1-163-038-00	CERAMIC CHIP 0.1MF		25V			
C33	1-124-910-11	ELECT 47MF	20%	50V			
C34	1-124-907-11	ELECT 10MF	20%	50V			
C35	1-163-243-11	CERAMIC CHIP 47PF	5%	50V			
C36	1-163-239-11	CERAMIC CHIP 33PF	5%	50V			
C37	1-216-295-00	METAL GLAZE 0	5%	1/10W			
C39	1-163-135-00	CERAMIC CHIP 560PF	5%	50V			
C40	1-163-263-11	CERAMIC CHIP 330PF	5%	50V			
C53	1-163-038-00	CERAMIC CHIP 0.1MF		25V			
C54	1-163-038-00	CERAMIC CHIP 0.1MF		25V			
<CONNECTOR>							
CN1737	*1-564-511-11	PLUG, CONNECTOR 8P					
CN1741	*1-564-511-11	PLUG, CONNECTOR 8P					
<TRIMMER>							
CT01	1-141-418-11	CAP, ADJ					
<DIODE>							
D01	8-719-400-18	DIODE MA152WK					
D03	8-719-104-34	DIODE 1S2836					
D04	8-719-104-34	DIODE 1S2836					
D09	8-719-400-18	DIODE MA152WK					
D10	8-719-400-18	DIODE MA152WK					
D11	8-719-400-18	DIODE MA152WK					
D12	8-719-400-18	DIODE MA152WK					
<IC>							
IC01	8-759-073-28	IC SDA5248C1					
IC02	8-759-037-64	IC SDA5231-2					
IC03	8-759-146-48	IC UPD424256C-80					
IC04	8-752-353-39	IC CXD1050A-15P					
IC05	8-759-987-16	IC LW393P					
<COIL>							
L01	1-408-411-00	INDUCTOR 15UH					
L02	1-408-414-00	INDUCTOR 27UH					
L03	1-408-417-00	INDUCTOR 47UH					
L04	1-408-413-00	INDUCTOR 22UH					
L05	1-408-409-00	INDUCTOR 10UH					
<TRANSISTOR>							
Q01	8-729-120-28	TRANSISTOR 2SC1623-L5L6					
Q03	8-729-120-28	TRANSISTOR 2SC1623-L5L6					
Q04	8-729-120-28	TRANSISTOR 2SC1623-L5L6					
Q06	8-729-120-28	TRANSISTOR 2SC1623-L5L6					
Q07	8-729-120-28	TRANSISTOR 2SC1623-L5L6					
Q08	8-729-216-22	TRANSISTOR 2SA1162-G					
Q09	8-729-120-28	TRANSISTOR 2SC1623-L5L6					
Q10	8-729-120-28	TRANSISTOR 2SC1623-L5L6					
Q11	8-729-120-28	TRANSISTOR 2SC1623-L5L6					
Q12	8-729-901-00	TRANSISTOR DTC124EK					
<RESISTOR>							
JR02	1-216-295-00	METAL GLAZE 0	5%	1/10W			
R01	1-216-025-00	METAL GLAZE 100	5%	1/10W			
R02	1-216-025-00	METAL GLAZE 100	5%	1/10W			
R03	1-216-055-00	METAL GLAZE 1.8K	5%	1/10W			
R04	1-216-049-00	METAL GLAZE 1K	5%	1/10W			
R05	1-216-041-00	METAL GLAZE 470	5%	1/10W			
R06	1-216-029-00	METAL GLAZE 150	5%	1/10W			
R07	1-216-041-00	METAL GLAZE 470	5%	1/10W			
R08	1-216-071-00	METAL GLAZE 8.2K	5%	1/10W			
R09	1-216-091-00	METAL GLAZE 56K	5%	1/10W			
R10	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W			
R11	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W			
R12	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W			
R13	1-216-065-00	METAL GLAZE 4.7K	5%	1/10W			
R15	1-216-061-00	METAL GLAZE 3.3K	5%	1/10W			
R16	1-216-033-00	METAL GLAZE 220	5%	1/10W			
R17	1-216-033-00	METAL GLAZE 220	5%	1/10W			
R20	1-216-049-00	METAL GLAZE 1K	5%	1/10W			
R21	1-216-049-00	METAL GLAZE 1K	5%	1/10W			
R22	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W			
R23	1-216-065-00	METAL GLAZE 4.7K	5%	1/10W			
R24	1-216-091-00	METAL GLAZE 56K	5%	1/10W			
R25	1-216-065-00	METAL GLAZE 4.7K	5%	1/10W			
R26	1-216-089-00	METAL GLAZE 47K	5%	1/10W			
R27	1-216-043-00	METAL GLAZE 560	5%	1/10W			
R28	1-216-043-00	METAL GLAZE 560	5%	1/10W			
R29	1-216-043-00	METAL GLAZE 560	5%	1/10W			
R30	1-216-037-00	METAL GLAZE 330	5%	1/10W			
R31	1-216-061-00	METAL GLAZE 3.3K	5%	1/10W			
R32	1-216-073-00	METAL GLAZE 10K	5%	1/10W			
R33	1-216-017-00	METAL GLAZE 47	5%	1/10W			
R34	1-216-081-00	METAL GLAZE 22K	5%	1/10W			
R35	1-216-081-00	METAL GLAZE 22K	5%	1/10W			
R36	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W			
R37	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W			
R38	1-218-773-11	METAL CHIP 750K	0.50%	1/10W			
R39	1-216-103-00	METAL CHIP 180K	0.50%	1/10W			
R40	1-216-043-00	METAL GLAZE 560	5%	1/10W			
R41	1-216-033-00	METAL GLAZE 220	5%	1/10W			
R42	1-216-033-00	METAL GLAZE 220	5%	1/10W			
R43	1-216-033-00	METAL GLAZE 220	5%	1/10W			
R44	1-216-033-00	METAL GLAZE 220	5%	1/10W			
R46	1-216-073-00	METAL GLAZE 10K	5%	1/10W			
R47	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W			
R48	1-216-071-00	METAL GLAZE 8.2K	5%	1/10W			
R49	1-216-071-00	METAL GLAZE 8.2K	5%	1/10W			
R50	1-216-071-00	METAL GLAZE 8.2K	5%	1/10W			
R54	1-216-073-00	METAL GLAZE 10K	5%	1/10W			
R55	1-216-069-00	METAL GLAZE 6.8K	5%	1/10W			



IF VM V

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
T3	1-416-012-11	COIL		Q1706	8-729-119-78	TRANSISTOR 2SC2785-HFE	
T4	1-416-012-11	COIL		Q1707	8-729-140-96	TRANSISTOR 2SD774-34	
				Q1708	8-729-907-06	TRANSISTOR BF199-AMMO	
				Q1709	8-729-255-12	TRANSISTOR 2SC2551-0	
		<CRYSTAL>					
X1	1-579-648-21	VIBRATOR, CERAMIC				<RESISTOR>	
		*****		R1701	1-249-405-11	CARBON 100 5% 1/4W	
	*A-1644-028-A	VM BOARD, COMPLETE (KV-E2931B,E2931D)		R1702	1-249-420-11	CARBON 1.8K 5% 1/4W	
		*****		R1703	1-249-405-11	CARBON 100 5% 1/4W	
	*A-1342-189-A	VM BOARD, COMPLETE (KV-E3431B,E3431D)		R1704	1-249-420-11	CARBON 1.8K 5% 1/4W	
		*****		R1705	1-247-736-11	CARBON 56 5% 1/2W F	
	*4-368-683-01	SPRING (KV-E2931B,E2931D)		R1706	1-249-414-11	CARBON 560 5% 1/4W F	
	4-382-854-11	SCREW (M3X10), P, SW (+)		R1707	1-249-412-11	CARBON 390 5% 1/4W	
		(KV-E3431B,E3431D)		R1709	1-249-416-11	CARBON 820 5% 1/4W	
				R1710	1-249-385-11	CARBON 2.2 5% 1/4W F	
				R1711	1-249-432-11	CARBON 18K 5% 1/4W	
		<CAPACITOR>		R1712	1-249-435-11	CARBON 33K 5% 1/4W	
C1701	1-124-119-00	ELECT 330MF 20% 16V		R1713	1-249-438-11	CARBON 56K 5% 1/4W	
C1702	1-101-880-00	CERAMIC 47PF 5% 50V		R1714	1-249-429-11	CARBON 10K 5% 1/4W	
C1703	1-102-115-00	CERAMIC 560PF 10% 50V		R1715	1-216-476-11	METAL OXIDE 180 5% 3W F	
C1704	1-161-830-00	CERAMIC 0.0047MF 500V		R1716	1-249-417-11	CARBON 1K 5% 1/4W F	
C1705	1-124-120-11	ELECT 220MF 20% 16V		R1717	1-249-432-11	CARBON 18K 5% 1/4W	
C1706	1-123-935-00	ELECT 33MF 20% 160V		R1718	1-249-410-11	CARBON 270 5% 1/4W	
C1707	1-124-907-11	ELECT 10MF 20% 50V		R1719	1-249-419-11	CARBON 1.5K 5% 1/4W	
C1708	1-101-006-00	CERAMIC 0.047MF 50V		R1720	1-249-441-11	CARBON 100K 5% 1/4W	
C1709	1-108-704-11	MYLAR 0.1MF 10% 200V		R1721	1-249-414-11	CARBON 560 5% 1/4W	
C1710	1-137-052-91	FILM 0.047MF 10% 400V		R1722	1-249-385-11	CARBON 2.2 5% 1/4W F	
C1711	1-162-318-11	CERAMIC 0.001MF 10% 500V		R1723	1-249-429-11	CARBON 10K 5% 1/4W	
C1712	1-124-799-11	ELECT 2.2MF 20% 160V		R1724	1-249-436-11	CARBON 39K 5% 1/4W	
C1713	1-162-318-11	CERAMIC 0.001MF 10% 500V		R1725	1-249-417-11	CARBON 1K 5% 1/4W	
C1714	1-137-052-91	FILM 0.047MF 10% 400V		R1726	1-249-411-11	CARBON 330 5% 1/4W	
C1716	1-124-907-11	ELECT 10MF 20% 50V		R1727	1-249-402-11	CARBON 56 5% 1/4W F	
C1718	1-124-120-11	ELECT 220MF 20% 16V		R1729	1-216-451-11	METAL OXIDE 120 5% 2W F	
C1719	1-124-907-11	ELECT 10MF 20% 50V	D)	R1731	1-249-420-11	CARBON 1.8K 5% 1/4W	
			D)	R1732	1-249-426-11	CARBON 5.6K 5% 1/4W	
				R1734	1-249-419-11	CARBON 1.5K 5% 1/4W	
		<CONNECTOR>				*****	
CN1819*	1-568-882-81	PIN, CONNECTOR 7P			*A-1645-024-A	V BOARD, COMPLETE	
CN1830*	1-568-878-51	PIN, CONNECTOR 3P (KV-E3431B,E3431D)				*****	
						(KV-E2531B,E2531D,E2931B,E2931D)	
		<DIODE>			*A-1347-069-A	V BOARD, COMPLETE (KV-E3431B,E3431D)	
		*****				*****	
D1701	8-719-911-19	DIODE 1SS119				<CAPACITOR>	
D1702	8-719-911-19	DIODE 1SS119		C01	1-126-233-11	ELECT 22MF 20% 50V	
D1703	8-719-911-19	DIODE 1SS119		C02	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
D1704	8-719-982-37	DIODE MTZJ-39C		C03	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
D1705	8-719-982-37	DIODE MTZJ-39C					
D1706	8-719-911-19	DIODE 1SS119		C04	1-126-233-11	ELECT 22MF 20% 50V	
D1707	8-719-911-19	DIODE 1SS119		C05	1-163-037-11	CERAMIC CHIP 0.022MF 10% 25V	
		<COIL>		C06	1-124-120-11	ELECT 220MF 20% 16V	
L1702	1-408-418-00	INDUCTOR 56UH		C07	1-124-903-11	ELECT 1MF 20% 50V	
				C08	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	
		<TRANSISTOR>		C09	1-163-141-00	CERAMIC CHIP 0.001MF 5% 50V	
Q1701	8-729-119-78	TRANSISTOR 2SC2785-HFE		C10	1-163-133-00	CERAMIC CHIP 470PF 5% 50V	
Q1702	8-729-173-38	TRANSISTOR 2SA733-K					
Q1703	8-729-208-39	TRANSISTOR 2SA1306A-Y					
Q1704	8-729-119-78	TRANSISTOR 2SC2785-HFE					
Q1705	8-729-208-72	TRANSISTOR 2SC3298B-Y					



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REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMAR
C1462	1-164-005-11	CERAMIC CHIP 0.47MF	25V	Q1416	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
C1463	1-126-101-11	ELECT 100MF	20% 16V	Q1417	8-729-900-53	TRANSISTOR DTC114EK	
C1464	1-126-101-11	ELECT 100MF	20% 16V	Q1418	8-729-900-53	TRANSISTOR DTC114EK	
C1465	1-126-101-11	ELECT 100MF	20% 16V	Q1419	8-729-900-53	TRANSISTOR DTC114EK	
C1466	1-126-101-11	ELECT 100MF	20% 16V	Q1421	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
C1467	1-126-101-11	ELECT 100MF	20% 16V	Q1422	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
C1471	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	Q1423	8-729-900-36	TRANSISTOR DTC124ES	
C1472	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V			<RESISTOR>	
C1473	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	JR1401	1-216-295-00	METAL GLAZE 0 5% 1/10W	
C1481	1-164-005-11	CERAMIC CHIP 0.47MF	25V	JR1402	1-216-295-00	METAL GLAZE 0 5% 1/10W	
C1482	1-163-001-11	CERAMIC CHIP 220PF	10% 50V	JR1403	1-216-295-00	METAL GLAZE 0 5% 1/10W	
C1491	1-124-907-11	ELECT 10MF	20% 50V	R1401	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
		<CONNECTOR>		R1402	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
CN1514*1-568-879-51	PIN, CONNECTOR 4P			R1403	1-216-025-00	METAL GLAZE 100 5% 1/10W	
CN1515*1-564-516-11	PLUG, CONNECTOR 13P			R1404	1-216-025-00	METAL GLAZE 100 5% 1/10W	
CN1516*1-568-879-51	PIN, CONNECTOR 4P			R1405	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
CN1538*1-573-299-11	CONNECTOR, BOARD TO BOARD 10P			R1406	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
		<DIODE>		R1407	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
D1401	8-719-105-91	DIODE RD5.6W-B2		R1408	1-216-041-00	METAL GLAZE 470 5% 1/10W	
		<FILTER>		R1410	1-216-029-00	METAL GLAZE 150 5% 1/10W	
FL1403	1-236-071-11	ENCAPSULATED COMPONENT		R1411	1-216-041-00	METAL GLAZE 470 5% 1/10W	
FL1404	1-236-071-11	ENCAPSULATED COMPONENT		R1412	1-216-041-00	METAL GLAZE 470 5% 1/10W	
FL1405	1-236-071-11	ENCAPSULATED COMPONENT		R1413	1-216-041-00	METAL GLAZE 470 5% 1/10W	
FL1406	1-236-071-11	ENCAPSULATED COMPONENT		R1414	1-216-041-00	METAL GLAZE 470 5% 1/10W	
FL1407	1-236-071-11	ENCAPSULATED COMPONENT		R1415	1-216-041-00	METAL GLAZE 470 5% 1/10W	
FL1408	1-236-071-11	ENCAPSULATED COMPONENT		R1417	1-216-033-00	METAL GLAZE 220 5% 1/10W	
		<IC>		R1418	1-216-121-00	METAL GLAZE 1K 5% 1/10W	
IC1401	8-759-073-16	IC TDA9160		R1419	1-216-027-00	METAL GLAZE 120 5% 1/10W	
IC1402	8-759-510-48	IC TDA4660T		R1421	1-216-033-00	METAL GLAZE 220 5% 1/10W	
IC1403	8-759-055-51	IC SDA9087XGEG		R1422	1-216-023-00	METAL GLAZE 82 5% 1/10W	
IC1404	8-759-055-52	IC SDA9089XGEG		R1424	1-216-041-00	METAL GLAZE 470 5% 1/10W	
IC1405	8-759-046-27	IC SDA9086-3		R1425	1-216-041-00	METAL GLAZE 470 5% 1/10W	
IC1406	8-759-504-21	IC TDA8443A/C4		R1426	1-216-041-00	METAL GLAZE 470 5% 1/10W	
IC1410	8-759-037-45	IC MC78L08ACPRP		R1427	1-216-041-00	METAL GLAZE 470 5% 1/10W	
IC1411	8-759-081-30	IC MC78L05ACPRP		R1429	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
		<COIL>		R1431	1-216-029-00	METAL GLAZE 150 5% 1/10W	
L1401	1-408-418-00	INDUCTOR 56UH		R1432	1-216-031-00	METAL GLAZE 180 5% 1/10W	
L1405	1-408-407-00	INDUCTOR 6.8UH		R1433	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
L1406	1-408-407-00	INDUCTOR 6.8UH		R1434	1-216-023-00	METAL GLAZE 82 5% 1/10W	
		<TRANSISTOR>		R1435	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
Q1401	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R1436	1-216-045-00	METAL GLAZE 680 5% 1/10W	
Q1402	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R1437	1-216-033-00	METAL GLAZE 220 5% 1/10W	
Q1403	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R1438	1-216-047-00	METAL GLAZE 820 5% 1/10W	
Q1404	8-729-216-22	TRANSISTOR 2SA1162-G		R1439	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
Q1405	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R1441	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
Q1406	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R1442	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
Q1407	8-729-216-22	TRANSISTOR 2SA1162-G		R1443	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
Q1408	8-729-216-22	TRANSISTOR 2SA1162-G		R1444	1-216-041-00	METAL GLAZE 470 5% 1/10W	
Q1409	8-729-216-22	TRANSISTOR 2SA1162-G		R1445	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
Q1413	8-729-216-22	TRANSISTOR 2SA1162-G		R1446	1-216-079-00	METAL GLAZE 18K 5% 1/10W	
Q1414	8-729-900-53	TRANSISTOR DTC114EK		R1449	1-216-033-00	METAL GLAZE 220 5% 1/10W	
Q1415	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R1450	1-216-033-00	METAL GLAZE 220 5% 1/10W	
				R1451	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
				R1452	1-216-689-11	METAL GLAZE 39K 5% 1/10W	
				R1453	1-216-025-00	METAL GLAZE 100 5% 1/10W	
				R1454	1-216-025-00	METAL GLAZE 100 5% 1/10W	
				R1455	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
				R1456	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
				R1458	1-216-041-00	METAL GLAZE 470 5% 1/10W	
				R1461	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
				R1462	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
				R1463	1-249-417-11	CARBON 1K 5% 1/4W	
				R1471	1-216-037-00	METAL GLAZE 330 5% 1/10W	
				R1481	1-216-097-00	METAL GLAZE 100K 5% 1/10W	



V H1 H2 P

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
<CRYSTAL>				1C091	8-741-101-75	IC SBX1610-11	
X02	1-567-495-11	OSCILLATOR, CRYSTAL		<RESISTOR>			
*****				R091	1-249-413-11	CARBON 470 5% 1/4W	
*****				*****			
*1-643-004-11	H1 BOARD	*****		*A-1622-005-A	P BOARD, COMPLETE	*****	
<CAPACITOR>				<CAPACITOR>			
C083	1-163-037-11	CERAMIC CHIP 0.022MF	10% 25V	C1401	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C087	1-163-037-11	CERAMIC CHIP 0.022MF	10% 25V	C1402	1-163-038-00	CERAMIC CHIP 0.1MF	25V
<CONNECTOR>				C1403	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
CN1008*1-564-516-11	PLUG, CONNECTOR 13P			C1404	1-163-037-11	CERAMIC CHIP 0.022MF	10% 25V
<JACK>				C1405	1-163-097-00	CERAMIC CHIP 15PF	5% 50V
J81	1-568-678-11	TERMINAL BLOCK, S 3P		C1406	1-163-097-00	CERAMIC CHIP 15PF	5% 50V
J82	1-562-837-11	JACK		C1407	1-163-038-00	CERAMIC CHIP 0.1MF	25V
<COIL>				C1408	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
L081	1-408-409-00	INDUCTOR 10UH		C1409	1-124-903-11	ELECT 1MF	20% 50V
L082	1-408-409-00	INDUCTOR 10UH		C1410	1-163-038-00	CERAMIC CHIP 0.1MF	25V
<RESISTOR>				C1411	1-163-038-00	CERAMIC CHIP 0.1MF	25V
JR020	1-216-295-00	METAL GLAZE 0 5% 1/10W		C1412	1-163-038-00	CERAMIC CHIP 0.1MF	25V
JR021	1-216-295-00	METAL GLAZE 0 5% 1/10W		C1414	1-163-121-00	CERAMIC CHIP 150PF	5% 50V
R081	1-216-073-00	METAL GLAZE 10K 5% 1/10W		C1416	1-163-129-00	CERAMIC CHIP 330PF	5% 50V
R082	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W		C1417	1-163-129-00	CERAMIC CHIP 330PF	5% 50V
R083	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W		C1419	1-164-005-11	CERAMIC CHIP 0.47MF	25V
R084	1-249-419-11	CARBON 1.5K 5% 1/4W		C1420	1-163-038-00	CERAMIC CHIP 0.1MF	25V
R085	1-249-419-11	CARBON 1.5K 5% 1/4W		C1421	1-163-038-00	CERAMIC CHIP 0.1MF	25V
<SWITCH>				C1422	1-163-038-00	CERAMIC CHIP 0.1MF	25V
S081	1-571-532-21	SWITCH, TACTIL		C1423	1-163-038-00	CERAMIC CHIP 0.1MF	25V
S082	1-571-532-21	SWITCH, TACTIL		C1424	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
S083	1-571-532-21	SWITCH, TACTIL		C1425	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
*****				C1426	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
*1-642-997-11	H2 BOARD	*****		C1427	1-126-233-11	ELECT 22MF	20% 50V
*4-201-076-01	HOLDER, LED			C1428	1-163-038-00	CERAMIC CHIP 0.1MF	25V
*4-374-987-01	GUIDE, LIGHT			C1430	1-163-038-00	CERAMIC CHIP 0.1MF	25V
*4-381-686-01	BRACKET (B), LIGHT GUIDE			C1431	1-163-031-11	CERAMIC CHIP 0.01MF	50V
<CONNECTOR>				C1432	1-163-031-11	CERAMIC CHIP 0.01MF	50V
CN1132*1-568-882-51	PIN, CONNECTOR 7P			C1433	1-163-031-11	CERAMIC CHIP 0.01MF	50V
<DIODE>				C1434	1-163-038-00	CERAMIC CHIP 0.1MF	25V
D092	8-719-948-31	DIODE LD-201VR		C1435	1-163-038-00	CERAMIC CHIP 0.1MF	25V
D093	8-719-948-31	DIODE LD-201VR		C1436	1-163-038-00	CERAMIC CHIP 0.1MF	25V
D094	8-719-948-31	DIODE LD-201VR		C1437	1-164-343-11	CERAMIC CHIP 0.056MF	10% 25V
<IC>				C1438	1-163-005-11	CERAMIC CHIP 470PF	10% 50V
				C1441	1-164-005-11	CERAMIC CHIP 0.47MF	25V
				C1442	1-164-005-11	CERAMIC CHIP 0.47MF	25V
				C1443	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
				C1444	1-164-005-11	CERAMIC CHIP 0.47MF	25V
				C1445	1-164-005-11	CERAMIC CHIP 0.47MF	25V
				C1446	1-164-005-11	CERAMIC CHIP 0.47MF	25V
				C1447	1-163-038-00	CERAMIC CHIP 0.1MF	25V
				C1448	1-164-222-11	CERAMIC CHIP 0.22MF	25V
				C1449	1-163-257-11	CERAMIC CHIP 180PF	5% 50V
				C1450	1-164-005-11	CERAMIC CHIP 0.47MF	25V
				C1452	1-163-038-00	CERAMIC CHIP 0.1MF	25V
				C1453	1-163-038-00	CERAMIC CHIP 0.1MF	25V
				C1454	1-163-038-00	CERAMIC CHIP 0.1MF	25V
				C1455	1-163-133-00	CERAMIC CHIP 470PF	5% 50V
				C1456	1-163-133-00	CERAMIC CHIP 470PF	5% 50V
				C1457	1-164-005-11	CERAMIC CHIP 0.47MF	25V
				C1461	1-164-005-11	CERAMIC CHIP 0.47MF	25V



The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

KV-E2531D/E2931D/E3431D  
KV-E2531B/E2931B/E3431B  
RM-830 RM-830 RM-832

P F2 M

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
R1482	1-216-081-00	METAL GLAZE 22K 5% 1/10W		LF662	$\Delta$ 1-424-391-11	TRANSFORMER, LINE FILTER	
R1483	1-216-097-00	METAL GLAZE 100K 5% 1/10W				(KV-E2531B, E2531D, E2931B, E2931D)	
R1484	1-216-083-00	METAL GLAZE 27K 5% 1/10W		$\Delta$ 1-424-436-11	TRANSFORMER, LINE FILTER		(KV-E3431B, E3431D)
R1485	1-216-041-00	METAL GLAZE 470 5% 1/10W		LF663	$\Delta$ 1-421-862-11	LFT	
R1486	1-216-033-00	METAL GLAZE 220 5% 1/10W				<TRANSISTOR>	
R1487	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W		Q661	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
R1492	1-216-033-00	METAL GLAZE 220 5% 1/10W				<RESISTOR>	
R1493	1-216-073-00	METAL GLAZE 10K 5% 1/10W		R663	$\Delta$ 1-244-945-91	CARBON 1M 5% 1/2W	
R1494	1-216-174-00	METAL GLAZE 100 5% 1/8W		R664	$\Delta$ 1-205-949-11	WIREWOUND 1.8 5% 10W	
R1495	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W				(KV-E2531B, E2531D, E2931B, E2931D)	
R1496	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W		$\Delta$ 1-202-968-11	WIREWOUND 1.2 5% 10W		(KV-E3431B, E3431D)
R1497	1-216-041-00	METAL GLAZE 470 5% 1/10W		R665	$\Delta$ 1-218-265-91	METAL GLAZE 8.2M 5% 1W	
R1498	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W		R666	1-249-405-11	CARBON 100 5% 1/4W F	
R1499	1-216-049-00	METAL GLAZE 1K 5% 1/10W		R667	1-249-430-11	CARBON 12K 5% 1/4W	
		<CRYSTAL>		R668	1-249-434-11	CARBON 27K 5% 1/4W	
X1401	1-567-505-11	OSCILLATOR, CRYSTAL		R669	$\Delta$ 1-205-949-11	WIREWOUND 1.8 5% 10W	
X1402	1-567-504-11	OSCILLATOR, CRYSTAL				(KV-E2531B, E2531D, E2931B, E2931D)	
*****				$\Delta$ 1-202-968-11	WIREWOUND 1.2 5% 10W		(KV-E3431B, E3431D)
*A-1624-010-A	F2 BOARD, COMPLETE			R670	$\Delta$ 1-202-968-11	WIREWOUND 1.2 5% 10W	
		(KV-E2531B, E2531D, E2931B, E2931D)				(KV-E3431B, E3431D)	
*A-1624-012-A	F2 BOARD, COMPLETE	(KV-E3431B, E3431D)		R671	1-249-415-11	CARBON 680 5% 1/4W F	
		*****				<RELAY>	
*4-341-751-01	EYELET			RY661	$\Delta$ 1-515-720-31	RELAY	
*4-341-752-01	EYELET					<THERMISTOR>	
		<CAPACITOR>		THP661	$\Delta$ 1-809-827-11	THERMISTOR, POSITIVE	
C661	$\Delta$ 1-136-519-11	FILM 0.47MF 20% 300V		*****			
C662	$\Delta$ 1-136-518-11	FILM 0.33MF 20% 300V		*A-1635-001-A	M BOARD, COMPLETE		
C664	$\Delta$ 1-164-246-51	CERAMIC 0.0022MF 20% 400V				*****	
C666	1-124-120-11	ELECT 220MF 20% 25V				<CAPACITOR>	
C667	1-126-233-11	ELECT 22MF 20% 50V		C001	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C672	$\Delta$ 1-161-964-61	CERAMIC 0.0047MF 250V		C003	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C673	$\Delta$ 1-161-964-61	CERAMIC 0.0047MF 250V		C007	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C674	$\Delta$ 1-125-318-11	ELECT (BLOCK) 220MF 20% 400V		C008	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
		(KV-E2531B, E2531D, E2931B, E2931D)		C010	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
$\Delta$ 1-125-555-11	ELECT 330MF 20% 400V			C011	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
		(KV-E3431B, E3431D)		C012	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
		<CONNECTOR>		C014	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
CN0005*1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P			C016	1-163-141-00	CERAMIC CHIP 0.001MF 5% 50V	
CN0007*1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P			C018	1-164-505-11	CERAMIC CHIP 2.2MF 16V	
CN0924*1-568-878-51	PIN, CONNECTOR 3P			C019	1-126-233-11	ELECT 22MF 20% 50V	
CN0925*1-695-294-11	PIN, CONNECTOR (PC BOARD) 6P			C032	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
CN0929*1-508-766-00	PIN, CONNECTOR (5MM PITCH) 4P			C035	1-163-037-11	CERAMIC CHIP 0.022MF 10% 25V	
CN0931*1-691-291-11	PIN, CONNECTOR (PC BOARD) 5P			C036	1-164-005-11	CERAMIC CHIP 0.47MF 25V	
		<DIODE>		C037	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
D661	8-719-911-19	DIODE 1SS119		C501	1-163-020-00	CERAMIC CHIP 0.0082MF 10% 50V	
D662	8-719-400-18	DIODE MA152WK		C502	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
D663	$\Delta$ 8-719-510-63	DIODE D4SB60L-F		C503	1-137-123-91	FILM 0.0033MF 5% 63V	
D664	8-719-921-69	DIODE MTZJ-9.1		C504	1-137-025-91	FILM 0.56MF 10% 63V	
		<TRANSFORMER>					
LF661	$\Delta$ 1-424-391-11	TRANSFORMER, LINE FILTER					
		(KV-E2531B, E2531D, E2931B, E2931D)					
$\Delta$ 1-424-436-11	TRANSFORMER, LINE FILTER						
		(KV-E3431B, E3431D)					



— 108 —



C D1

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
Q712	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R758	1-249-419-11	CARBON 1.5K 5% 1/4W	
Q713	8-729-216-22	TRANSISTOR 2SA1162-G		R759	1-249-419-11	CARBON 1.5K 5% 1/4W	
Q714	8-729-255-12	TRANSISTOR 2SC2551-O		R760	1-249-419-11	CARBON 1.5K 5% 1/4W	
<RESISTOR>				<VARIABLE RESISTOR>			
JR701	1-216-296-00	METAL GLAZE 0 5% 1/8W		RV701	1-230-641-11	RES, ADJ, METAL GLAZE 2.2M	
JR703	1-216-296-00	METAL GLAZE 0 5% 1/8W		RV702	1-241-656-11	RES, ADJ, METAL FILM 110M	
R701	1-202-848-00	SOLID 680K 10% 1/2W		*****			
R702	1-202-838-00	SOLID 100K 20% 1/2W		*A-1640-083-A	D1 BOARD, COMPLETE (KV-E3431B,E3431D)		
R703	1-202-838-00	SOLID 100K 20% 1/2W		*****			
R704	1-202-842-11	SOLID 220K 10% 1/2W		*4-341-751-01	EYELET (EY1,EY2)		
R705	1-216-398-11	METAL OXIDE 5.6 5% 3W F		*4-341-752-01	EYELET (EY3,EY4)		
R706	1-216-398-11	METAL OXIDE 5.6 5% 3W F		4-382-854-11	SCREW (M3X10), P. SW (+)		
R710	1-215-899-11	METAL OXIDE 15K 5% 2W F		<CAPACITOR>			
R711	1-202-820-11	SOLID 1.5K 20% 1/2W		C1610	1-137-052-91	FILM 0.047MF 10% 400V	
R712	1-215-899-11	METAL OXIDE 15K 5% 2W F		C1614	1-137-104-11	FILM 0.033MF 10% 250V	
R713	1-202-820-11	SOLID 1.5K 20% 1/2W		C1615	1-124-903-11	ELECT 1MF 20% 50V	
R714	1-215-899-11	METAL OXIDE 15K 5% 2W F		C1616	1-137-038-91	FILM 0.001MF 10% 400V	
R715	1-202-820-11	SOLID 1.5K 20% 1/2W		C1617	1-137-124-91	FILM 0.0047MF 5% 63V	
R716	1-247-700-11	CARBON 100 5% 1/4W F		C1620	1-137-051-91	FILM 0.033MF 10% 400V	
R717	1-249-405-11	CARBON 100 5% 1/4W F		C1622	1-124-557-11	ELECT 1000MF 20% 25V	
R718	1-247-700-11	CARBON 100 5% 1/4W F		C1629	1-137-052-91	FILM 0.047MF 10% 400V	
R720	1-249-417-11	CARBON 1K 5% 1/4W F		C1801	1-124-910-11	ELECT 47MF 20% 50V	
R722	1-247-713-11	CARBON 1K 5% 1/4W F		C1802	1-124-910-11	ELECT 47MF 20% 50V	
R724	1-249-417-11	CARBON 1K 5% 1/4W F		C1804	1-137-126-91	FILM 0.01MF 5% 63V	
R725	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W		C1805	1-137-132-91	FILM 0.1MF 5% 63V	
R726	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W		C1806	1-137-132-91	FILM 0.1MF 5% 63V	
R727	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W		C1807	1-124-360-00	ELECT 1000MF 20% 16V	
R728	1-216-039-00	METAL GLAZE 390 5% 1/10W		C1809	1-136-104-00	FILM 0.16MF 5% 200V	
R729	1-216-039-00	METAL GLAZE 390 5% 1/10W		C1810	1-137-028-11	FILM 1MF 10% 63V	
R730	1-216-039-00	METAL GLAZE 390 5% 1/10W		C1811	1-162-318-11	CERAMIC 0.001MF 10% 500V	
R731	1-216-017-00	METAL GLAZE 47 5% 1/10W		C1812	1-124-927-11	ELECT 4.7MF 20% 50V	
R732	1-216-017-00	METAL GLAZE 47 5% 1/10W		C1813	1-137-130-91	FILM 0.047MF 5% 63V	
R733	1-216-017-00	METAL GLAZE 47 5% 1/10W		C1814	1-124-907-11	ELECT 10MF 20% 50V	
R734	1-202-549-00	SOLID 100 20% 1/2W		C1815	1-124-907-11	ELECT 10MF 20% 50V	
R735	1-216-049-00	METAL GLAZE 1K 5% 1/10W		C1816	1-126-233-11	ELECT 22MF 20% 50V	
R738	1-216-025-00	METAL GLAZE 100 5% 1/10W		C1817	1-124-927-11	ELECT 4.7MF 20% 50V	
R739	1-216-025-00	METAL GLAZE 100 5% 1/10W		C1818	1-124-910-11	ELECT 47MF 20% 50V	
R740	1-216-025-00	METAL GLAZE 100 5% 1/10W		C1819	1-137-132-91	FILM 0.1MF 5% 63V	
R741	1-216-089-00	METAL GLAZE 47K 5% 1/10W		C1820	1-126-103-11	ELECT 470MF 20% 16V	
R742	1-216-295-00	METAL GLAZE 0 5% 1/10W		C1822	1-137-043-11	FILM 0.0047MF 10% 400V	
R743	1-249-434-11	CARBON 27K 5% 1/4W		<CONNECTOR>			
R747	1-216-488-11	METAL OXIDE 18K 5% 3W F		CN0607*1-568-879-51	PIN, CONNECTOR 4P		
R749	1-215-926-00	METAL OXIDE 33K 5% 3W F		CN0622*1-564-512-11	PLUG, CONNECTOR 9P		
R751	1-216-489-11	METAL OXIDE 27K 5% 3W F		CN0630*1-568-878-51	PIN, CONNECTOR 3P		
R753	1-216-073-00	METAL GLAZE 10K 5% 1/10W		CY1 *1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P		
R755	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	(KV-E2531B,E2531D)	<DIODE>			
	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	(KV-E2931B,E2931D)	D1603	8-719-979-85	DIODE EGP20G	
	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	(KV-E3431B,E3431D)	D1604	8-719-947-06	DIODE RGP10JPKG23	
R756	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	(KV-E2531B,E2531D)	D1801	8-719-981-01	DIODE ERA81-004	
	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	(KV-E2931B,E2931D)	D1802	8-719-911-19	DIODE 1SS119	
	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	(KV-E3431B,E3431D)	D1803	8-719-911-19	DIODE 1SS119	
R757	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	(KV-E2531B,E2531D)	D1804	8-719-911-19	DIODE 1SS119	
	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	(KV-E2931B,E2931D)	D1805	8-719-801-35	THYRISTOR SHOR3D42	
	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	(KV-E3431B,E3431D)				





REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK	
R070	1-216-037-00	METAL GLAZE	330 5% 1/10W		*A-1638-026-A	C BOARD, COMPLETE (KV-E3431B,E3431D) *****		
R501	1-216-047-00	METAL GLAZE	820 5% 1/10W					
R502	1-216-097-00	METAL GLAZE	100K 5% 1/10W		*4-341-752-01	EYELET (EY1-EY4)		
R503	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W					
R504	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W					
						<CAPACITOR>		
R505	1-216-075-00	METAL GLAZE	12K 5% 1/10W	C701	1-162-114-00	CERAMIC 0.0047MF	2KV	
R506	1-216-049-00	METAL GLAZE	1K 5% 1/10W	C703	1-123-946-00	ELECT 4.7MF	20% 250V	
R507	1-216-099-00	METAL GLAZE	120K 5% 1/10W	C704	1-130-202-00	FILM 0.022MF	5% 400V	
R509	1-216-039-00	METAL GLAZE	390 5% 1/10W	C705	1-162-116-00	CERAMIC 680PF	10% 2KV	
R510	1-216-073-00	METAL GLAZE	10K 5% 1/10W	C708	1-163-197-00	CERAMIC CHIP 470PF	10% 50V	
R511	1-216-097-00	METAL GLAZE	100K 5% 1/10W	C709	1-163-005-11	CERAMIC CHIP 470PF	10% 50V	
R512	1-216-049-00	METAL GLAZE	1K 5% 1/10W	C710	1-163-005-11	CERAMIC CHIP 470PF	10% 50V	
R513	1-216-230-00	METAL GLAZE	22K 5% 1/8W	C711	1-101-880-00	CERAMIC 47PF	5% 50V	
R514	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	C712	1-163-121-00	CERAMIC CHIP 150PF	5% 50V	
R515	1-216-049-00	METAL GLAZE	1K 5% 1/10W	C713	1-163-121-00	CERAMIC CHIP 150PF	5% 50V	
R516	1-216-039-00	METAL GLAZE	390 5% 1/10W	C714	1-163-121-00	CERAMIC CHIP 150PF	5% 50V	
R517	1-216-039-00	METAL GLAZE	390 5% 1/10W	C716	1-124-122-11	ELECT 100MF	20% 50V	
R518	1-216-075-00	METAL GLAZE	12K 5% 1/10W					
R519	1-216-033-00	METAL GLAZE	220 5% 1/10W					
R520	1-216-093-00	METAL GLAZE	68K 5% 1/10W					
						<CONNECTOR>		
R521	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W	CN0002*1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P			
R522	1-216-085-00	METAL GLAZE	33K 5% 1/10W	CN0403*1-564-511-11	PLUG, CONNECTOR 8P			
R523	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	CN0421*1-508-768-00	PIN, CONNECTOR (5MM PITCH) 6P			
R524	1-216-063-00	METAL GLAZE	3.9K 5% 1/10W					
R525	1-216-093-00	METAL GLAZE	68K 5% 1/10W					
						<DIODE>		
R526	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W	D701	8-719-911-19	DIODE 1SS119		
R527	1-216-071-00	METAL GLAZE	8.2K 5% 1/10W	D702	8-719-911-19	DIODE 1SS119		
R528	1-216-049-00	METAL GLAZE	1K 5% 1/10W	D703	8-719-911-19	DIODE 1SS119		
R529	1-216-696-11	METAL CHIP	75K 0.50% 1/10W	D704	8-719-911-19	DIODE 1SS119		
R531	1-216-085-00	METAL GLAZE	33K 5% 1/10W	D705	8-719-911-19	DIODE 1SS119		
R532	1-249-427-11	METAL	6.8K 5% 1/4W	D706	8-719-911-19	DIODE 1SS119		
R533	1-216-105-00	METAL GLAZE	220K 5% 1/10W	D707	8-719-911-19	DIODE 1SS119		
R535	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	D708	8-719-911-19	DIODE 1SS119		
R536	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	D709	8-719-911-19	DIODE 1SS119		
R538	1-216-025-00	METAL GLAZE	100 5% 1/10W	D710	8-719-911-19	DIODE 1SS119		
R539	1-216-657-11	METAL CHIP	1.8K 0.50% 1/10W	D713	8-719-911-55	DIODE U05G		
R540	1-216-295-00	METAL GLAZE	0 5% 1/10W					
R541	1-216-049-00	METAL GLAZE	1K 5% 1/10W					
R542	1-216-025-00	METAL GLAZE	100 5% 1/10W					
R544	1-216-085-00	METAL GLAZE	33K 5% 1/10W					
						<JACK>		
R545	1-216-033-00	METAL GLAZE	220 5% 1/10W	J701	1-526-990-11	SOCKET, PICTURE TUBE		
R546	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W					
R547	1-216-049-00	METAL GLAZE	1K 5% 1/10W					
R551	1-216-049-00	METAL GLAZE	1K 5% 1/10W					
R552	1-216-097-00	METAL GLAZE	100K 5% 1/10W					
						<COIL>		
R553	1-216-085-00	METAL GLAZE	33K 5% 1/10W	L701	1-410-667-31	INDUCTOR 22UH		
R559	1-216-049-00	METAL GLAZE	1K 5% 1/10W	L703	1-408-609-41	INDUCTOR 33UH		
R560	1-216-073-00	METAL GLAZE	10K 5% 1/10W	L705	1-408-609-41	INDUCTOR 33UH		
R564	1-216-091-00	METAL GLAZE	56K 5% 1/10W	L707	1-408-609-41	INDUCTOR 33UH		
R565	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W					
						<TRANSISTOR>		
R566	1-216-073-00	METAL GLAZE	10K 5% 1/10W	Q701	8-729-906-70	TRANSISTOR BF871		
R567	1-216-085-00	METAL GLAZE	33K 5% 1/10W	Q702	8-729-906-70	TRANSISTOR BF871		
R568	1-216-109-00	METAL GLAZE	330K 5% 1/10W	Q703	8-729-906-70	TRANSISTOR BF871		
R570	1-216-049-00	METAL GLAZE	1K 5% 1/10W	Q704	8-729-906-70	TRANSISTOR BF871		
				Q705	8-729-906-70	TRANSISTOR BF871		
				Q706	8-729-906-70	TRANSISTOR BF871		
				Q707	8-729-200-17	TRANSISTOR 2SA1091-0		
				Q708	8-729-200-17	TRANSISTOR 2SA1091-0		
				Q709	8-729-200-17	TRANSISTOR 2SA1091-0		
				Q710	8-729-120-28	TRANSISTOR 2SC1623-L5L6		
				Q711	8-729-120-28	TRANSISTOR 2SC1623-L5L6		
<VARIABLE RESISTOR>								
RV506	1-241-766-21	RES, ADJ, CERMET 47K						
*****								
	*A-1638-027-A	C BOARD, COMPLETE (KV-E2531B,E2531D) *****						
	*A-1638-025-A	C BOARD, COMPLETE (KV-E2931B,E2931D) *****						





REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
<DIODE>				C918	1-163-133-00	CERAMIC CHIP 470PF	5% 50V
				C919	1-163-133-00	CERAMIC CHIP 470PF	5% 50V
				C920	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
D261	8-719-911-19	DIODE ISS119		C921	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
D262	8-719-911-19	DIODE ISS119		C922	1-124-477-11	ELECT 47MF	20% 16V
D270	8-719-921-69	DIODE MTZJ-9.1		C923	1-164-346-11	CERAMIC CHIP 1MF	16V
<IC>				C924	1-124-477-11	ELECT 47MF	20% 16V
IC270	8-759-072-99	IC TDA2052		C925	1-124-477-11	ELECT 47MF	20% 16V
	4-201-023-01	SPACER, INSULATING; IC270		C926	1-164-346-11	CERAMIC CHIP 1MF	16V
	4-812-134-00	RIVET NYLON, 3.5; IC270		C927	1-124-477-11	ELECT 47MF	20% 16V
<TRANSISTOR>				C928	1-124-477-11	ELECT 47MF	20% 16V
Q270	8-729-120-28	TRANSISTOR 2SC1623-L5L6		C929	1-124-477-11	ELECT 47MF	20% 16V
<RESISTOR>				C930	1-124-477-11	ELECT 47MF	20% 16V
R269	1-216-041-00	METAL GLAZE 470 5% 1/10W		C931	1-164-346-11	CERAMIC CHIP 1MF	16V
R270	1-216-085-00	METAL GLAZE 33K 5% 1/10W		C932	1-164-346-11	CERAMIC CHIP 1MF	16V
R271	1-216-085-00	METAL GLAZE 33K 5% 1/10W		C933	1-124-477-11	ELECT 47MF	20% 16V
R272	1-216-077-00	METAL GLAZE 15K 5% 1/10W		C934	1-124-477-11	ELECT 47MF	20% 16V
R273	1-216-073-00	METAL GLAZE 10K 5% 1/10W		C935	1-124-477-11	ELECT 47MF	20% 16V
<CONNECTOR>				C936	1-164-346-11	CERAMIC CHIP 1MF	16V
R274	1-216-081-00	METAL GLAZE 22K 5% 1/10W		C937	1-164-346-11	CERAMIC CHIP 1MF	16V
R275	1-216-047-00	METAL GLAZE 820 5% 1/10W		C938	1-124-477-11	ELECT 47MF	20% 16V
R276	1-216-081-00	METAL GLAZE 22K 5% 1/10W		<DIODE>			
R277	1-217-477-00	FUSIBLE 4.7 5% 1W F		D901	8-719-921-69	DIODE MTZJ-9.1	
R278	1-216-093-00	METAL GLAZE 68K 5% 1/10W		D902	8-719-921-69	DIODE MTZJ-9.1	
R279	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W		D903	8-719-921-69	DIODE MTZJ-9.1	
R280	1-216-073-00	METAL GLAZE 10K 5% 1/10W		D904	8-719-921-69	DIODE MTZJ-9.1	
R281	1-247-752-11	CARBON 1K 5% 1/2W		D905	8-719-921-69	DIODE MTZJ-9.1	
*****				D906	8-719-921-69	DIODE MTZJ-9.1	
*A-1651-033-A	J BOARD, COMPLETE			D907	8-719-921-69	DIODE MTZJ-9.1	
	*****			D908	8-719-921-69	DIODE MTZJ-9.1	
	(KV-E2531B, E2531D, E2931B, E2931D)			D909	8-719-921-69	DIODE MTZJ-9.1	
*A-1651-039-A	J BOARD, COMPLETE (KV-E3431B, E3431D)			D910	8-719-921-69	DIODE MTZJ-9.1	
	*****			D911	8-719-921-69	DIODE MTZJ-9.1	
<CAPACITOR>				D912	8-719-921-69	DIODE MTZJ-9.1	
C281	1-124-442-00	ELECT 330MF 20% 6.3V		D913	8-719-921-69	DIODE MTZJ-9.1	
C291	1-101-005-00	CERAMIC 0.022MF 50V		D914	8-719-921-69	DIODE MTZJ-9.1	
C292	1-101-005-00	CERAMIC 0.022MF 50V		D915	8-719-921-69	DIODE MTZJ-9.1	
C295	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V		D916	8-719-921-69	DIODE MTZJ-9.1	
C296	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V		D917	8-719-921-69	DIODE MTZJ-9.1	
C298	1-101-005-00	CERAMIC 0.022MF 50V		D918	8-719-921-69	DIODE MTZJ-9.1	
C901	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V		D919	8-719-921-69	DIODE MTZJ-9.1	
C902	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V		D920	8-719-921-69	DIODE MTZJ-9.1	
C904	1-163-133-00	CERAMIC CHIP 470PF 5% 50V		D921	8-719-921-69	DIODE MTZJ-9.1	
C905	1-163-133-00	CERAMIC CHIP 470PF 5% 50V		D922	8-719-921-69	DIODE MTZJ-9.1	
C906	1-101-004-00	CERAMIC 0.01MF 50V		D923	8-719-921-69	DIODE MTZJ-9.1	
C907	1-163-133-00	CERAMIC CHIP 470PF 5% 50V		D924	8-719-921-69	DIODE MTZJ-9.1	
C908	1-163-133-00	CERAMIC CHIP 470PF 5% 50V		D925	8-719-921-69	DIODE MTZJ-9.1	
C909	1-101-004-00	CERAMIC 0.01MF 50V		D926	8-719-921-69	DIODE MTZJ-9.1	
C910	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V		D927	8-719-921-69	DIODE MTZJ-9.1	
C911	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V		D928	8-719-921-69	DIODE MTZJ-9.1	
C912	1-163-133-00	CERAMIC CHIP 470PF 5% 50V		<JACK>			
C913	1-163-133-00	CERAMIC CHIP 470PF 5% 50V		J901	1-695-296-11	TERMINAL BLOCK, S	
C914	1-163-121-00	CERAMIC CHIP 150PF 5% 50V		J903	1-561-534-41	SOCKET 21P	
C915	1-163-121-00	CERAMIC CHIP 150PF 5% 50V		J904	1-695-296-11	TERMINAL BLOCK, S	
C916	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V					
C917	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V					



D1 K

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
D1806	8-719-981-01	DIODE ERA81-004		R1808	1-215-461-00	METAL 47K 1% 1/4W	
D1807	8-719-981-01	DIODE ERA81-004		R1809	1-249-423-11	CARBON 3.3K 5% 1/4W	
D1808	8-719-911-19	DIODE ISS119		R1810	1-249-413-11	CARBON 470 5% 1/4W	
D1809	8-719-911-19	DIODE ISS119		R1811	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
D1810	8-719-911-19	DIODE ISS119		R1812	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
D1811	8-719-300-33	DIODE RU-3AM		R1813	1-249-417-11	CARBON 1K 5% 1/4W	
D1812	8-719-911-19	DIODE ISS119		R1815	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
<IC>				R1816	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
IC1603	8-759-987-16	IC LM393P		R1817	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
IC1801	8-749-920-58	IC SI-3090CA		R1818	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
*4-341-752-01	EYELET; IC1801			R1820	1-249-417-11	CARBON 1K 5% 1/4W	
IC1802	8-752-052-88	IC CXA1526P		R1821	1-216-379-11	METAL OXIDE 6.8 5% 2W F	
IC1803	8-759-135-80	IC UPC358C		R1822	1-249-423-11	CARBON 3.3K 5% 1/4W	
<COIL>				R1824	1-247-713-11	CARBON 1K 5% 1/4W F	
L1601	1-410-093-11	INDUCTOR 33MMH		R1825	1-215-857-71	METAL OXIDE 10 5% 1W F	
L1603	1-459-087-00	COIL,HCC DUST CORE 3.9MMH		R1826	1-249-404-00	CARBON 82 5% 1/4W	
L1604	1-459-104-00	COIL, DUST CORE		R1827	1-215-875-71	METAL OXIDE 10K 5% 1W F	
L1607	1-459-148-00	COIL		R1828	1-249-441-11	CARBON 100K 5% 1/4W	
*4-341-751-01	EYELET; L1607			R1829	1-249-414-11	CARBON 560 5% 1/4W	
L1801	1-459-592-11	COIL (WITH CORE) (PMC)		R1830	1-249-411-11	CARBON 330 5% 1/4W	
L1802	1-459-087-00	COIL,HCC DUST CORE 3.9MMH		R1831	1-249-426-11	CARBON 5.6K 5% 1/4W	
<TRANSISTOR>				R1832	1-215-885-00	METAL OXIDE 68 5% 2W F	
Q1610	8-729-119-78	TRANSISTOR 2SC2785-HFE		R1834	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
Q1613	8-729-011-02	TRANSISTOR 2SK1917		R1835	1-249-393-11	CARBON 10 5% 1/4W	
Q1802	8-729-173-38	TRANSISTOR 2SA733-K		R1836	1-249-435-11	CARBON 33K 5% 1/4W	
Q1803	8-729-119-78	TRANSISTOR 2SC2785-HFE		R1837	1-249-435-11	CARBON 33K 5% 1/4W	
Q1804	8-729-119-78	TRANSISTOR 2SC2785-HFE		R1838	1-216-379-11	METAL OXIDE 6.8 5% 2W F	
Q1805	8-729-140-97	TRANSISTOR 2SB734-34		R1839	1-249-410-11	CARBON 270 5% 1/4W	
Q1806	8-729-119-78	TRANSISTOR 2SC2785-HFE		R1840	1-249-429-11	CARBON 10K 5% 1/4W	
Q1807	8-729-140-97	TRANSISTOR 2SB734-34		R1841	1-249-437-11	CARBON 47K 5% 1/4W	
Q1808	8-729-173-38	TRANSISTOR 2SA733-K		R1842	1-249-429-11	CARBON 10K 5% 1/4W	
Q1809	8-729-209-15	TRANSISTOR 2SD2012		R1843	1-249-421-11	CARBON 2.2K 5% 1/4W	
Q1810	8-729-140-96	TRANSISTOR 2SD774-34		R1846	1-249-429-11	CARBON 10K 5% 1/4W	
Q1811	8-729-119-78	TRANSISTOR 2SC2785-HFE		R1847	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
Q1812	8-729-119-78	TRANSISTOR 2SC2785-HFE		R1848	1-249-429-11	CARBON 10K 5% 1/4W	
Q1813	8-729-119-78	TRANSISTOR 2SC2785-HFE		R1849	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
<RESISTOR>				*****			
JR1	1-216-295-00	METAL GLAZE 0 5% 1/10W		*1-643-003-11	K BOARD		
JR2	1-216-295-00	METAL GLAZE 0 5% 1/10W		*****			
R1625	1-249-415-11	CARBON 680 5% 1/4W		4-200-001-01	HOLDER, IC		
R1628	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W		<CAPACITOR>			
R1629	1-249-429-11	CARBON 10K 5% 1/4W		C268	1-163-005-11	CERAMIC CHIP 470PF 10% 50V	
R1630	1-249-435-11	CARBON 33K 5% 1/4W		C269	1-101-006-00	CERAMIC 0.047MF 50V	
R1631	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W		C270	1-163-024-00	CERAMIC CHIP 0.018MF 50V	
R1632	1-249-436-11	CARBON 39K 5% 1/4W		C271	1-164-492-11	CERAMIC CHIP 0.15MF 10% 16V	
R1633	1-249-421-11	CARBON 2.2K 5% 1/4W		C272	1-126-233-11	ELECT 22MF 20% 50V	
R1634	1-216-097-00	METAL GLAZE 100K 5% 1/10W		C273	1-124-618-11	ELECT 2200MF 20% 35V	
R1635	1-216-073-00	METAL GLAZE 10K 5% 1/10W		C274	1-124-618-11	ELECT 2200MF 20% 35V	
R1636	1-216-073-00	METAL GLAZE 10K 5% 1/10W		C275	1-164-505-11	CERAMIC CHIP 2.2MF 16V	
R1637	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W		C276	1-164-505-11	CERAMIC CHIP 2.2MF 16V	
R1641	1-249-411-11	CARBON 330 5% 1/4W		C277	1-137-134-91	FILM 0.22MF 5% 63V	
R1666	1-212-865-00	FUSIBLE 22 5% 1/4W F		C278	1-124-925-11	ELECT 2.2MF 20% 50V	
R1801	1-249-409-11	CARBON 220 5% 1/4W		C279	1-124-122-11	ELECT 100MF 20% 35V	
R1802	1-249-409-11	CARBON 220 5% 1/4W		<CONNECTOR>			
R1804	1-247-891-00	CARBON 330K 5% 1/4W		CN1311	1-568-882-51	PIN, CONNECTOR 7P	
R1806	1-216-103-00	METAL GLAZE 180K 5% 1/10W		CN1312	*1-508-784-00	PIN, CONNECTOR (5MM PITCH) 1P	
R1807	1-247-891-00	CARBON 330K 5% 1/4W		CN1333	*1-568-878-51	PIN, CONNECTOR 3P	



D

The components identified by shading and mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

Les composants identifiés par une trame et une marque  $\Delta$  sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié.

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
<CAPACITOR>							
C601	1-130-202-00	FILM 0.022MF	10% 400V	C852	1-164-299-11	CERAMIC CHIP 0.22MF	10% 25V
C603	1-161-742-00	CERAMIC 0.0022MF	20% 400V	C853	1-124-910-11	ELECT 47MF	20% 50V
C605	1-124-910-11	ELECT 47MF	20% 50V	C854 $\Delta$	1-162-115-91	CERAMIC 330PF	10% 2KV
C608	1-124-903-11	ELECT 1MF	20% 50V	C857	1-124-902-00	ELECT 0.47MF	20% 50V
C612	1-130-480-00	MYLAR 0.0056MF	5% 50V	C861	1-137-132-91	FILM 0.1MF	5% 63V
C613	1-129-722-00	FILM 0.047MF	10% 630V	C863	1-137-094-11	FILM 0.047MF	10% 100V
C614	1-102-030-00	CERAMIC 330PF	10% 500V	C866	1-137-038-91	FILM 0.001MF	10% 400V
C615	1-126-943-11	ELECT 2200MF	20% 25V	C868	1-137-127-91	FILM 0.015MF	5% 63V
C616	1-102-030-00	CERAMIC 330PF	10% 500V	C869	1-137-098-11	FILM 0.1MF	10% 100V
C617	1-162-116-00	CERAMIC 680PF	10% 2KV	C870	1-137-120-91	FILM 0.001MF	5% 63V
C618	1-162-134-11	CERAMIC 470PF	10% 2KV	C871	1-130-651-00	FILM 0.001MF	2% 100V
C619	1-102-030-00	CERAMIC 330PF	10% 500V	C872	1-124-907-11	ELECT 10MF	20% 50V
C620	1-164-299-11	CERAMIC CHIP 0.22MF	10% 25V	C873	1-137-120-91	FILM 0.001MF	5% 63V
C621	1-124-347-00	ELECT 100MF	20% 160V	C875	1-102-038-00	CERAMIC 0.001MF	5% 500V
C622	1-128-320-11	ELECT 2200MF	20% 16V	C877	1-124-902-00	ELECT 0.47MF	20% 50V
C623	1-102-030-00	CERAMIC 330PF	10% 500V	C878	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C624	1-126-800-51	ELECT 2200MF	20% 35V	C1501	1-163-141-00	CERAMIC CHIP 0.001MF	5% 50V
C625	1-126-800-51	ELECT 2200MF	20% 35V	C1502	1-124-903-11	ELECT 1MF	20% 50V
C627	1-137-124-91	FILM 0.0047MF	5% 63V	C1503	1-163-133-00	CERAMIC CHIP 470PF	5% 50V
C628	1-124-910-11	ELECT 47MF	20% 50V	C1504	1-124-480-11	ELECT 470MF	20% 25V
C629	1-124-907-11	ELECT 10MF	20% 50V	C1505	1-124-911-11	ELECT 220MF	20% 50V
C631	1-163-075-00	CERAMIC CHIP 0.047MF	10% 25V	C1506	1-137-135-91	FILM 0.33MF	5% 63V
C632	1-137-128-91	FILM 0.022MF	5% 63V	C1507	1-137-031-11	FILM 0.22MF	10% 100V
C633	1-163-078-11	CERAMIC CHIP 0.033MF	10% 25V	C1508	1-124-480-11	ELECT 470MF	20% 25V
C635	1-102-212-00	CERAMIC 820PF	10% 500V	C1509	1-124-767-00	ELECT 2.2MF	20% 50V
C636	1-137-132-91	FILM 0.1MF	5% 63V	C1511	1-124-907-11	ELECT 10MF	20% 50V
C640	1-126-233-11	ELECT 22MF	20% 50V	C1512	1-124-006-11	ELECT 10MF	20% 25V
C801	1-137-116-11	FILM 1MF	5% 200V	C1514	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C803	1-164-695-11	CERAMIC CHIP 0.0022MF	5% 50V	C1515	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C804	1-137-130-91	FILM 0.047MF	5% 63V	<CONNECTOR>			
C805	1-124-902-00	ELECT 0.47MF	20% 50V	CN0004*1	508-786-00	PIN, CONNECTOR (5MM PITCH) 2P	
C806	1-124-907-11	ELECT 10MF	20% 50V	CN0009*1	568-878-51	PIN, CONNECTOR 3P	
C808	1-162-114-00	CERAMIC 0.0047MF	20% 2KV	CN0010*1	568-877-51	PIN, CONNECTOR 2P	
C809	1-124-808-51	ELECT 10MF	20% 200V	CN0504*1	568-882-51	PIN, CONNECTOR 7P	
C810	1-163-001-11	CERAMIC CHIP 220PF	10% 50V	CN0505*1	568-880-51	PIN, CONNECTOR 5P	
C812	1-162-318-11	CERAMIC 0.001MF	10% 500V	CN0506*1	568-880-61	PIN, CONNECTOR 5P	
C813	1-108-704-11	MYLAR 0.1MF	10% 200V	CN0519*1	568-878-51	PIN, CONNECTOR 3P	
C815	1-162-117-00	CERAMIC 100PF	10% 500V	CN0521*1	508-765-00	PIN, CONNECTOR (5MM PITCH) 3P	
C819	1-126-103-11	ELECT 470MF	20% 16V	CN0524*1	568-878-51	PIN, CONNECTOR 3P	
C821 $\Delta$	1-137-514-11	FILM 0.021MF	2% 1.2KV	CN0525*1	695-294-11	PIN, CONNECTOR (PC BOARD) 6P	
C822 $\Delta$	1-162-116-91	CERAMIC 680PF	10% 2KV	CN0526*1	568-881-51	PIN, CONNECTOR 6P	
C823	1-124-902-00	ELECT 0.47MF	20% 50V	CN0529*1	508-784-00	PIN, CONNECTOR (5MM PITCH) 1P	
C824	1-137-124-91	FILM 0.0047MF	5% 63V	CN5521*1	568-878-51	PIN, CONNECTOR 3P	
C825 $\Delta$	1-162-116-91	CERAMIC 680PF	10% 2KV	DY1	*1-580-798-11	CONNECTOR PIN (DY) 6P	
C826 $\Delta$	1-136-895-51	FILM 0.068MF	5% 630V	<DIODE>			
C827	1-137-094-11	FILM 0.047MF	10% 100V	D602	8-719-300-33	DIODE RU-3AM	
C828	1-137-041-91	FILM 0.0033MF	10% 400V	D606	8-719-300-33	DIODE RU-3AM	
C831	1-123-932-00	ELECT 4.7MF	20% 160V	D608	8-719-300-33	DIODE RU-3AM	
C832	1-124-910-11	ELECT 47MF	20% 50V	D610	1-806-660-11	DIODE ESAB85-009	
C833	1-137-118-11	FILM 1.8MF	5% 200V	D611	8-719-029-04	DIODE D5L60	
C834	1-137-513-11	FILM 0.62MF	5% 200V	D612	8-719-510-09	DIODE D10SC6M	
C835	1-124-480-11	ELECT 470MF	20% 25V	D613	8-719-920-68	DIODE ESAB92-02	
C836	1-102-228-00	CERAMIC 470PF	10% 500V	D614	8-719-920-68	DIODE ESAB92-02	
C837	1-137-038-91	FILM 0.001MF	10% 400V	D616	8-719-110-31	DIODE RD12ES-B2	
C838	1-137-146-11	FILM 0.15MF	10% 250V	D619	8-719-400-18	DIODE MA152WK	
C839	1-123-950-00	ELECT 47MF	20% 250V	D620	8-719-911-19	DIODE 1SS119	
C840	1-124-480-11	ELECT 470MF	20% 25V	D624	8-719-312-40	DIODE R2K	
C841	1-102-228-00	CERAMIC 470PF	10% 500V	D801	8-719-018-82	DIODE RGP02-20EL-6394	
C842	1-137-053-91	FILM 0.068MF	10% 400V	D802	8-719-300-33	DIODE RU-3AM	
C846	1-123-024-21	ELECT 33MF	160V	D804	8-719-400-18	DIODE MA152WK	
C851	1-137-043-11	FILM 0.0047MF	10% 400V				





REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
J905	1-695-293-11	SOCKET 21P		R909	1-216-113-00	METAL GLAZE 470K 5%	1/10W
J906	1-695-296-11	TERMINAL BLOCK, S		R910	1-216-113-00	METAL GLAZE 470K 5%	1/10W
J907	1-695-293-11	SOCKET 21P		R911	1-216-022-00	METAL GLAZE 75 5%	1/10W
<COIL>				R913	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
L291	1-402-711-11	INDUCTOR, WIDEBAND		R914	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
L292	1-402-711-11	INDUCTOR, WIDEBAND		R915	1-216-113-00	METAL GLAZE 470K 5%	1/10W
L293	1-402-711-11	INDUCTOR, WIDEBAND		R916	1-216-113-00	METAL GLAZE 470K 5%	1/10W
<TRANSISTOR>				R917	1-216-022-00	METAL GLAZE 75 5%	1/10W
Q281	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R919	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
Q282	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R920	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
Q283	8-729-216-22	TRANSISTOR 2SA1162-G		R921	1-216-022-00	METAL GLAZE 75 5%	1/10W
<RESISTOR>				R922	1-216-222-00	METAL GLAZE 10K 5%	1/8W
JR201	1-216-296-00	METAL GLAZE 0 5%	1/8W	R923	1-216-039-00	METAL GLAZE 390 5%	1/10W
JR901	1-216-295-00	METAL GLAZE 0 5%	1/10W	R924	1-216-039-00	METAL GLAZE 390 5%	1/10W
JR905	1-216-296-00	METAL GLAZE 0 5%	1/8W	R925	1-216-089-00	METAL GLAZE 47K 5%	1/10W
JR906	1-216-295-00	METAL GLAZE 0 5%	1/10W	R926	1-216-039-00	METAL GLAZE 390 5%	1/10W
JR909	1-216-296-00	METAL GLAZE 0 5%	1/8W	R927	1-216-039-00	METAL GLAZE 390 5%	1/10W
JR910	1-216-296-00	METAL GLAZE 0 5%	1/8W	R928	1-216-089-00	METAL GLAZE 47K 5%	1/10W
JR911	1-216-296-00	METAL GLAZE 0 5%	1/8W	R929	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
JR915	1-216-295-00	METAL GLAZE 0 5%	1/10W	R930	1-216-113-00	METAL GLAZE 470K 5%	1/10W
JR917	1-216-296-00	METAL GLAZE 0 5%	1/8W	R931	1-216-216-00	METAL GLAZE 5.6K 5%	1/8W
JR918	1-216-295-00	METAL GLAZE 0 5%	1/10W	R932	1-216-113-00	METAL GLAZE 470K 5%	1/10W
JR919	1-216-296-00	METAL GLAZE 0 5%	1/8W	R933	1-216-073-00	METAL GLAZE 10K 5%	1/10W
JR920	1-216-295-00	METAL GLAZE 0 5%	1/10W	R934	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
JR921	1-216-295-00	METAL GLAZE 0 5%	1/10W	R935	1-216-022-00	METAL GLAZE 75 5%	1/10W
JR923	1-216-296-00	METAL GLAZE 0 5%	1/8W	R936	1-216-022-00	METAL GLAZE 75 5%	1/10W
JR924	1-216-296-00	METAL GLAZE 0 5%	1/8W	R937	1-216-113-00	METAL GLAZE 470K 5%	1/10W
JR926	1-216-296-00	METAL GLAZE 0 5%	1/8W	R938	1-216-039-00	METAL GLAZE 390 5%	1/10W
JR927	1-216-296-00	METAL GLAZE 0 5%	1/8W	R939	1-216-188-00	METAL GLAZE 390 5%	1/8W
JR928	1-216-296-00	METAL GLAZE 0 5%	1/8W	R940	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
JR935	1-216-296-00	METAL GLAZE 0 5%	1/8W	R941	1-216-113-00	METAL GLAZE 470K 5%	1/10W
JR939	1-216-295-00	METAL GLAZE 0 5%	1/10W	R942	1-216-188-00	METAL GLAZE 390 5%	1/8W
JR940	1-216-295-00	METAL GLAZE 0 5%	1/10W	R943	1-216-089-00	METAL GLAZE 47K 5%	1/10W
JR942	1-216-296-00	METAL GLAZE 0 5%	1/8W	R944	1-216-188-00	METAL GLAZE 390 5%	1/8W
JR944	1-216-295-00	METAL GLAZE 0 5%	1/10W	R945	1-216-089-00	METAL GLAZE 47K 5%	1/10W
JR946	1-216-296-00	METAL GLAZE 0 5%	1/8W	R946	1-216-022-00	METAL GLAZE 75 5%	1/10W
JR947	1-216-295-00	METAL GLAZE 0 5%	1/10W	R947	1-216-022-00	METAL GLAZE 75 5%	1/10W
JR952	1-216-296-00	METAL GLAZE 0 5%	1/8W	R948	1-216-073-00	METAL GLAZE 10K 5%	1/10W
JR954	1-216-295-00	METAL GLAZE 0 5%	1/10W	R949	1-216-113-00	METAL GLAZE 470K 5%	1/10W
JR955	1-216-296-00	METAL GLAZE 0 5%	1/8W	R950	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
R282	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R951	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
R283	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R952	1-216-113-00	METAL GLAZE 470K 5%	1/10W
R284	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R953	1-216-188-00	METAL GLAZE 390 5%	1/8W
R286	1-216-097-00	METAL GLAZE 100K 5%	1/10W	R954	1-216-039-00	METAL GLAZE 390 5%	1/10W
R287	1-216-216-00	METAL GLAZE 5.6K 5%	1/8W	R955	1-216-039-00	METAL GLAZE 390 5%	1/10W
R288	1-216-216-00	METAL GLAZE 5.6K 5%	1/8W	R956	1-216-089-00	METAL GLAZE 47K 5%	1/10W
R289	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W	R957	1-216-039-00	METAL GLAZE 390 5%	1/10W
R290	1-216-216-00	METAL GLAZE 5.6K 5%	1/8W	R958	1-216-089-00	METAL GLAZE 47K 5%	1/10W
R291	1-249-413-11	CARBON 470 5%	1/4W	R959	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W
R292	1-249-413-11	CARBON 470 5%	1/4W	R960	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W
R901	1-216-039-00	METAL GLAZE 390 5%	1/10W	R961	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W
R902	1-216-039-00	METAL GLAZE 390 5%	1/10W	*****			
R903	1-216-113-00	METAL GLAZE 470K 5%	1/10W	*A-1642-075-A D BOARD, COMPLETE (KV-E2531B,E2531D)			
R904	1-216-113-00	METAL GLAZE 470K 5%	1/10W	*****			
R905	1-216-188-00	METAL GLAZE 390 5%	1/8W	4-200-001-01	HOLDER, 1C		
R906	1-216-039-00	METAL GLAZE 390 5%	1/10W	4-201-023-01	SPACER, INSULATING		
R907	1-216-171-00	METAL GLAZE 75 5%	1/8W	*4-341-751-01	EYELET		
R908	1-216-171-00	METAL GLAZE 75 5%	1/8W	*4-341-752-01	EYELET		
				*4-368-683-01	SPRING		
				*4-389-343-01	SPRING		
				4-812-134-00	RIVET NYLON, 3.5		



**D**

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— 116 —







**D**

Les composants identifiés par une  
trame et une marque **Δ** sont  
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portant le numéro spécifié.

The components identified by  
shading and mark **Δ** are critical  
for safety.  
Replace only with part number  
specified.

REF.NO.	PART NO.	DESCRIPTION
D1503	8-719-911-55	DIODE U05G
D1504	8-719-982-03	DIODE MTZJ-3.6A

<IC>

IC601	8-759-073-29	IC TDA4605-3
IC602	8-759-908-15	IC TL431CLP
IC603	8-749-923-44	IC SFH617G-1
IC801	8-759-987-16	IC LM393P
IC802	8-759-987-16	IC LM393P
IC803	8-759-081-31	IC MC78L12ACPRP
IC1501	8-759-506-46	IC TDA8179S

<COIL>

L602	1-410-396-41	FERRITE BEAD INDUCTOR
L603	1-410-396-41	FERRITE BEAD INDUCTOR
L604	1-410-396-41	FERRITE BEAD INDUCTOR
L605	1-459-442-00	COIL (WITH CORE)
L606	1-459-442-00	COIL (WITH CORE)
L609	1-410-396-41	FERRITE BEAD INDUCTOR
L622	1-412-533-21	INDUCTOR 47UH
L623	1-412-533-21	INDUCTOR 47UH
L803	1-420-872-00	COIL, AIR CORE
L808	1-412-549-11	INDUCTOR 1MH
L809	1-459-111-00	COIL, DRAM CORE (CDI)
L810	1-460-197-11	COIL, FERRITE (PMC)
L811	1-412-519-11	INDUCTOR 3.3UH
L812	1-412-519-11	INDUCTOR 3.3UH
L813	1-412-519-11	INDUCTOR 3.3UH
L817	1-460-196-11	COIL, HORIZONTAL LINEARITY
L1501	1-412-531-31	INDUCTOR 33UH
L1502	1-412-525-21	INDUCTOR 10UH
L1503	1-412-531-31	INDUCTOR 33UH

<IC LINK>

PS601	Δ1-532-686-91	LINK, IC 2.7A
PS602	Δ1-532-686-91	LINK, IC 2.7A
PS603	Δ1-532-686-91	LINK, IC 2.7A
PS604	Δ1-532-686-91	LINK, IC 2.7A

<TRANSISTOR>


Q601	8-729-016-14	TRANSISTOR BUZ91A-E3155
Q602	8-729-177-22	TRANSISTOR 2SB772-Q
Q603	8-729-900-53	TRANSISTOR DTC114EK
Q610	8-729-216-22	TRANSISTOR 2SA1162-G
Q611	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q801	8-729-016-32	TRANSISTOR 2SC4927-01
Q802	8-729-140-97	TRANSISTOR 2SB734-34
Q804	8-729-216-22	TRANSISTOR 2SA1162-G
Q805	8-729-216-22	TRANSISTOR 2SA1162-G
Q806	8-729-011-00	TRANSISTOR 2SK1916-02F87
Q807	8-729-119-80	TRANSISTOR 2SC2688-LK
Q812	8-729-120-28	TRANSISTOR 2SC1623-L5L6
Q813	8-729-140-96	TRANSISTOR 2SD774-34
Q818	8-729-216-22	TRANSISTOR 2SA1162-G
Q1501	8-729-120-28	TRANSISTOR 2SC1623-L5L6
Q1502	8-729-901-01	TRANSISTOR DTC144EK
Q1503	8-729-216-22	TRANSISTOR 2SA1162-G
Q1504	8-729-901-01	TRANSISTOR DTC144EK

REMARK REF.NO. PART NO. DESCRIPTION REMARK

<RESISTOR>

JR001	1-216-295-00	METAL GLAZE	0	5%	1/10W	
JR002	1-216-295-00	METAL GLAZE	0	5%	1/10W	
JR003	1-216-295-00	METAL GLAZE	0	5%	1/10W	
JR004	1-216-295-00	METAL GLAZE	0	5%	1/10W	
JR005	1-216-295-00	METAL GLAZE	0	5%	1/10W	
JR500	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR501	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR502	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR503	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR504	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR505	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR506	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR507	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR508	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR509	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR510	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR511	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JW208	1-217-587-00	RES, SHORT	0.01		1/4W	
R601	1-216-353-00	METAL OXIDE	2.2	5%	1W	F
R602	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R603	1-215-901-00	METAL OXIDE	33K	5%	2W	F
R604	1-247-883-00	CARBON	150K	5%	1/4W	
R605	1-216-313-00	METAL GLAZE	8.2	5%	1/10W	
R606	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R607	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R608	1-215-928-11	METAL OXIDE	68K	5%	3W	F
R609	1-216-005-00	METAL GLAZE	15	5%	1/10W	
R610	1-247-885-00	CARBON	180K	5%	1/4W	
R611	1-249-405-11	CARBON	100	5%	1/4W	
R612	1-247-894-11	CARBON	430K	5%	1/4W	
R613	1-216-260-00	METAL GLAZE	390K	5%	1/8W	
R614	1-216-487-11	METAL OXIDE	12K	5%	3W	F
R615	1-216-487-11	METAL OXIDE	12K	5%	3W	F
R617	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R618	1-216-449-11	METAL OXIDE	56	5%	2W	F
R620	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R621	1-216-659-11	METAL CHIP	2.2K	0.50%	1/10W	
R622	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R623	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R625	1-216-449-11	METAL OXIDE	56	5%	2W	F
R626	1-216-635-11	METAL CHIP	220	0.50%	1/10W	
R627	1-249-398-11	CARBON	27	5%	1/4W	F
R628	1-215-464-00	METAL	62K	1%	1/4W	
R629	1-215-464-00	METAL	62K	1%	1/4W	
R630	1-249-421-11	CARBON	2.2K	5%	1/4W	
R631	1-216-397-11	METAL OXIDE	4.7	5%	3W	F
R633	1-249-415-11	CARBON	680	5%	1/4W	
R634	1-215-477-00	METAL	220K	1%	1/4W	
R635	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R636	1-216-452-11	METAL OXIDE	180	5%	2W	F
R637	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R638	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R639	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R640	1-207-905-00	WIREWOUND	0.27	10%	2W	F
R651	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R801	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R802	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R804	1-217-778-11	FUSIBLE	1K	5%	1W	F
R805	1-216-677-11	METAL CHIP	12K	0.50%	1/10W	
R806	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R807	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R808	1-216-085-00	METAL GLAZE	33K	5%	1/10W	



Les composants identifiés par une trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifique.

D

— 117 —



D

Les composants identifiés par une  
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Ne les remplacer que par une pièce  
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Replace only with part number  
specified.

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
C819	1-126-103-11	ELECT	470MF 20%	CN0524*1-568-878-51	PIN, CONNECTOR 3P		
C821 $\Delta$	1-137-065-11	FILM	0.024MF 3%	CN0525*1-695-294-11	PIN, CONNECTOR (PC BOARD) 6P		
C822 $\Delta$	1-162-116-91	CERAMIC	680PF 10%	CN0526*1-568-881-51	PIN, CONNECTOR 6P		
C823	1-124-903-11	ELECT	1MF 20%	CN0529*1-508-784-00	PIN, CONNECTOR (5MM PITCH) 1P		
C824	1-137-122-91	FILM	0.0022MF 5%	CN5521*1-568-878-51	PIN, CONNECTOR 3P		
C825 $\Delta$	1-162-116-91	CERAMIC	680PF 10%	DY1 *1-580-798-11	CONNECTOR PIN (DY) 6P		
C826 $\Delta$	1-136-316-51	FILM	0.056MF 5%				
C827	1-137-132-91	FILM	0.1MF 5%				
C828	1-137-041-91	FILM	0.0033MF 10%				
C831	1-123-932-00	ELECT	4.7MF 20%				
C832	1-124-910-11	ELECT	47MF 20%				
C833	1-137-118-11	FILM	1.8MF 5%				
C834	1-136-569-11	FILM	1.2MF 5%				
C835	1-124-480-11	ELECT	470MF 20%				
C836	1-102-228-00	CERAMIC	470PF 10%				
C837	1-137-038-91	FILM	0.001MF 10%				
C838	1-137-146-11	FILM	0.15MF 10%				
C839	1-123-950-00	ELECT	47MF 20%				
C840	1-124-480-11	ELECT	470MF 20%				
C841	1-102-228-00	CERAMIC	470PF 10%				
C842	1-137-053-91	FILM	0.068MF 10%				
C846	1-123-024-21	ELECT	33MF 160V				
C851	1-137-120-91	FILM	0.001MF 5%				
C852	1-164-299-11	CERAMIC CHIP	0.22MF 10%				
C853	1-124-910-11	ELECT	47MF 20%				
C854 $\Delta$	1-162-115-91	CERAMIC	330PF 10%				
C857	1-124-902-00	ELECT	0.47MF 20%				
C861	1-137-132-91	FILM	0.1MF 5%				
C868	1-137-127-91	FILM	0.015MF 5%				
C869	1-137-132-91	FILM	0.1MF 5%				
C870	1-137-120-91	FILM	0.001MF 5%				
C871	1-130-651-00	FILM	0.001MF 2%				
C872	1-124-907-11	ELECT	10MF 20%				
C873	1-137-120-91	FILM	0.001MF 5%				
C875	1-102-038-00	CERAMIC	0.001MF 500V				
C877	1-124-902-00	ELECT	0.47MF 20%				
C878	1-164-232-11	CERAMIC CHIP	0.01MF 10%				
C0603	1-161-742-00	CERAMIC	0.0022MF 20%				
C1501	1-163-141-00	CERAMIC CHIP	0.001MF 5%				
C1502	1-124-903-11	ELECT	1MF 20%				
C1503	1-163-133-00	CERAMIC CHIP	470PF 5%				
C1504	1-124-480-11	ELECT	470MF 20%				
C1505	1-124-911-11	ELECT	220MF 20%				
C1506	1-137-135-91	FILM	0.33MF 5%				
C1507	1-137-032-91	FILM	0.27MF 10%				
C1508	1-124-480-11	ELECT	470MF 20%				
C1509	1-124-767-00	ELECT	2.2MF 20%				
C1511	1-124-907-11	ELECT	10MF 20%				
C1512	1-124-006-11	ELECT	10MF 20%				
C1513	1-163-113-00	CERAMIC CHIP	68PF 5%				
C1514	1-164-004-11	CERAMIC CHIP	0.1MF 10%				
C1515	1-164-004-11	CERAMIC CHIP	0.1MF 10%				
<CONNECTOR>				<DIODE>			
CN0004*1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P			D602	8-719-300-33	DIODE RU-3AM	
CN0009*1-568-878-51	PIN, CONNECTOR 3P			D606	8-719-300-33	DIODE RU-3AM	
CN0010*1-568-877-51	PIN, CONNECTOR 2P			D608	8-719-300-33	DIODE RU-3AM	
CN0504*1-568-882-51	PIN, CONNECTOR 7P			D610	1-806-660-11	DIODE ESAB85-009	
CN0505*1-568-880-51	PIN, CONNECTOR 5P				4-382-854-11	SCREW (M3X10), P, SW (+); D610	
CN0506*1-568-880-61	PIN, CONNECTOR 5P			D611	8-719-029-04	DIODE D5L60	
CN0519*1-568-878-51	PIN, CONNECTOR 3P				4-382-854-11	SCREW (M3X10), P, SW (+); D611	
CN0521*1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P			D612	8-719-510-09	DIODE D10SC6M	
CN0522*1-564-512-11	PLUG, CONNECTOR 9P				4-382-854-11	SCREW (M3X10), P, SW (+); D612	
				D613	8-719-920-68	DIODE ESAB92-02	
					4-382-854-11	SCREW (M3X10), P, SW (+); D613	
				D614	8-719-920-68	DIODE ESAB92-02	
					4-382-854-11	SCREW (M3X10), P, SW (+); D614	
				D616	8-719-110-31	DIODE RD12ES-B2	
				D619	8-719-400-18	DIODE MA152WK	
				D620	8-719-911-19	DIODE 1SS119	
				D624	8-719-312-40	DIODE R2K	
				D801	8-719-018-82	DIODE RGP02-20EL-6394	
				D802	8-719-300-33	DIODE RU-3AM	
				D804	8-719-400-18	DIODE MA152WK	
				D808	8-719-109-88	DIODE RD5.6ES-B1	
				D809	8-719-110-03	DIODE RD7.5ES-B2	
				D811 $\Delta$	8-719-906-40	DIODE ERB44-06	
				D812	8-719-911-55	DIODE U05G	
				D813	8-719-911-55	DIODE U05G	
				D814	8-719-028-29	DIODE RU30ALFS1	
				D815	8-719-300-33	DIODE RU-3AM	
				D816	8-719-979-85	DIODE EGP20G	
				D818	8-719-109-93	DIODE RD6.2ES-B2	
				D821	8-719-400-18	DIODE MA152WK	
				D822	8-719-982-20	DIODE MTZJ-30B	
				D824	8-719-976-64	DIODE RGP02-17	
				D825	8-719-400 18	DIODE MA152WK	
				D826	8-719-400-18	DIODE MA152WK	
				D827	8-719-983-50	DIODE MTZJ-T-72-2.2A	
				D828	8-719-911-19	DIODE 1SS119	
				D830	8-719-400-18	DIODE MA152WK	
				D831	8-719-400-18	DIODE MA152WK	
				D832	8-719-400-18	DIODE MA152WK	
				D833	8-719-400-18	DIODE MA152WK	
				D1501	8-719-400-18	DIODE MA152WK	
				D1503	8-719-911-55	DIODE U05G	
				D1504	8-719-982-03	DIODE MTZJ-3.6A	
<IC>				<IC>			
				IC601	8-759-073-29	IC TDA4605-3	
				IC602	8-759-908-15	IC TL431CLP	
				IC603	8-749-923-44	IC SFH617G-1	
				IC801	8-759-987-16	IC LM393P	
				IC802	8-759-987-16	IC LM393P	
				IC803	8-759-081-31	IC MC78L12ACPRP	
				IC1501	8-759-506-46	IC TDA8179S	



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KV-E2531D/E2931D/E3431D  
KV-E2531B/E2931B/E3431B  
RM-830 RM-830 RM-832

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REF.NO.	PART NO.	DESCRIPTION				REMARK	REF.NO.	PART NO.	DESCRIPTION				REMARK
R809	1-216-097-00	METAL GLAZE	100K	5%	1/10W		R1511	1-215-887-00	METAL OXIDE	150	5%	2W	F
R811	1-216-033-00	METAL GLAZE	220	5%	1/10W		R1512	1-216-371-00	METAL OXIDE	1.5	5%	2W	F
R812	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W		R1513	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R813	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W		R1514	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R814	1-216-091-00	METAL GLAZE	56K	5%	1/10W		R1551	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R815	1-216-081-00	METAL GLAZE	22K	5%	1/10W		<VARIABLE RESISTOR>						
R819	1-247-755-11	CARBON	1.8K	5%	1/2W	F	RV601	1-241-628-11	RES, ADJ, CARBON 2.2K				
R820	1-216-097-00	METAL GLAZE	100K	5%	1/10W		<TRANSFORMER>						
R821	1-216-481-11	METAL OXIDE	1.2K	5%	3W	F	T601	1-697-001-11	S.R.T (SMT89)				
R822	1-216-481-11	METAL OXIDE	1.2K	5%	3W	F	T801	1-453-118-11	TRANSFORMER ASSY, FLYBACK (UX-2500A2)				
R823	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W		T803	1-437-090-00	HDT				
R824	1-216-675-11	METAL CHIP	10K	0.50%	1/10W		*****						
R825	1-216-345-11	METAL OXIDE	0.47	5%	1W	F	*A-1642-083-A D BOARD, COMPLETE (KV-E3431B,E3431D)						
R826	1-216-166-00	METAL GLAZE	47	5%	1/8W		*****						
R828	1-216-121-00	METAL GLAZE	1M	5%	1/10W		4-200-001-01	HOLDER, IC					
R829	1-249-429-11	CARBON	10K	5%	1/4W	F	4-201-023-01	SPACER, INSULATING					
R830	1-216-687-11	METAL CHIP	33K	0.50%	1/10W		*4-341-751-01	EYELET					
R832	1-216-089-00	METAL GLAZE	47K	5%	1/10W		*4-341-752-01	EYELET					
R833	1-216-105-00	METAL GLAZE	220K	5%	1/10W		4-812-134-00	RIVET NYLON, 3.5					
R834	1-216-101-00	METAL GLAZE	150K	5%	1/10W		<CAPACITOR>						
R835	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W		C601	1-130-202-00	FILM	0.022MF	10%	400V	
R836	1-216-242-00	METAL GLAZE	68K	5%	1/8W		C605	1-124-910-11	ELECT	47MF	20%	50V	
R837	1-216-695-11	METAL CHIP	68K	0.50%	1/10W		C608	1-124-903-11	ELECT	1MF	20%	50V	
R838	1-216-093-00	METAL GLAZE	68K	5%	1/10W		C612	1-137-046-11	FILM	0.0082MF	10%	400V	
R839	1-216-062-00	METAL GLAZE	3.6K	5%	1/10W		C613	1-129-722-00	FILM	0.047MF	10%	630V	
R841	1-249-397-11	CARBON	22	5%	1/4W	F	C614	1-102-030-00	CERAMIC	330PF	10%	500V	
R842	1-215-890-11	METAL OXIDE	470	5%	2W	F	C615	1-126-943-11	ELECT	2200MF	20%	25V	
R845	1-218-772-11	METAL CHIP	680K	0.50%	1/10W		C616	1-102-030-00	CERAMIC	330PF	10%	500V	
R846	1-216-671-11	METAL CHIP	6.8K	0.50%	1/10W		C617	1-162-116-00	CERAMIC	680PF	10%	2KV	
R847	1-216-699-11	METAL CHIP	100K	0.50%	1/10W		C618	1-162-134-11	CERAMIC	470PF	10%	2KV	
R849	1-215-881-11	METAL OXIDE	15	5%	2W	F	C619	1-102-030-00	CERAMIC	330PF	10%	500V	
R851	1-247-743-11	CARBON	220	5%	1/2W	F	C620	1-164-299-11	CERAMIC CHIP	0.22MF	10%	25V	
R852	1-249-389-11	CARBON	4.7	5%	1/4W	F	C621	1-124-347-00	ELECT	100MF	20%	160V	
R853	1-249-443-11	CARBON	0.47	5%	1/4W	F	C622	1-128-320-11	ELECT	2200MF	20%	16V	
R854	1-249-443-11	CARBON	0.47	5%	1/4W	F	C623	1-102-030-00	CERAMIC	330PF	10%	500V	
R855	1-202-818-00	SOLID	1K	10%	1/2W		C624	1-126-800-51	ELECT	2200MF	20%	35V	
R858	1-249-425-11	CARBON	4.7K	5%	1/4W		C625	1-126-800-51	ELECT	2200MF	20%	35V	
R864	1-216-685-11	METAL CHIP	27K	0.50%	1/10W		C627	1-137-124-91	FILM	0.0047MF	5%	63V	
R865	1-247-901-11	CARBON	820K	5%	1/4W		C628	1-124-910-11	ELECT	47MF	20%	50V	
R866	1-216-103-00	METAL GLAZE	180K	5%	1/10W		C629	1-124-907-11	ELECT	10MF	20%	50V	
R867	1-216-113-00	METAL GLAZE	470K	5%	1/10W		C631	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V	
R868	1-249-431-11	CARBON	15K	5%	1/4W		C632	1-137-128-91	FILM	0.022MF	5%	63V	
R871	1-249-493-11	CARBON	56K	5%	1/2W		C633	1-163-078-11	CERAMIC CHIP	0.033MF	10%	25V	
R872	1-249-393-11	CARBON	10	5%	1/4W	F	C636	1-137-132-91	FILM	0.1MF	5%	63V	
R873	1-249-393-11	CARBON	10	5%	1/4W	F	C640	1-126-233-11	ELECT	22MF	20%	50V	
R876	1-249-421-11	CARBON	2.2K	5%	1/4W	F	C801	1-137-116-11	FILM	1MF	5%	200V	
R877	1-215-880-00	METAL OXIDE	10	5%	2W	F	C803	1-164-695-11	CERAMIC CHIP	0.0022MF	5%	50V	
R878	1-215-883-11	METAL OXIDE	33	5%	2W	F	C804	1-137-130-91	FILM	0.047MF	5%	63V	
R884	1-216-693-11	METAL CHIP	56K	0.50%	1/10W		C805	1-124-902-00	ELECT	0.47MF	20%	50V	
R889	1-216-089-00	METAL GLAZE	47K	5%	1/10W		C806	1-124-907-11	ELECT	10MF	20%	50V	
R893	1-215-878-00	METAL OXIDE	33K	5%	1W	F	C808	1-162-114-00	CERAMIC	0.0047MF		2KV	
R894	1-216-264-00	METAL GLAZE	560K	5%	1/8W		C809	1-124-808-51	ELECT	10MF	20%	200V	
R895	1-216-079-00	METAL GLAZE	18K	5%	1/10W		C810	1-163-001-11	CERAMIC CHIP	220PF	10%	50V	
R897	1-216-089-00	METAL GLAZE	47K	5%	1/10W		C812	1-162-318-11	CERAMIC	0.001MF	10%	500V	
R898	1-216-262-00	METAL GLAZE	470K	5%	1/8W		C813	1-108-704-11	MYLAR	0.1MF	10%	200V	
R1501	1-216-673-11	METAL CHIP	8.2K	0.50%	1/10W		C815	1-162-117-00	CERAMIC	100PF	10%	500V	
R1502	1-216-664-11	METAL CHIP	3.6K	0.50%	1/10W								
R1503	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W								
R1504	1-216-081-00	METAL GLAZE	22K	5%	1/10W								
R1505	1-216-081-00	METAL GLAZE	22K	5%	1/10W								
R1506	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W								
R1508	1-216-684-11	METAL CHIP	24K	0.50%	1/10W								
R1509	1-216-089-00	METAL GLAZE	47K	5%	1/10W								
R1510	1-249-382-11	CARBON	1.2	5%	1/4W	F							



**KV-E2531D/E2931D/E3431D**  
**KV-E2531B/E2931B/E3431B**  
**RM-830 RM-830 RM-832**

**D**

REF.NO.	PART NO.	DESCRIPTION	REMARK
R824	1-216-675-11	METAL CHIP	10K 0.50% 1/10W
R825	1-216-342-11	METAL OXIDE	0.27 5% 1W F
R826	1-216-166-00	METAL GLAZE	47 5% 1/8W
R828	1-216-121-00	METAL GLAZE	1M 5% 1/10W
R829	1-249-429-11	CARBON	10K 5% 1/4W F
R830	1-216-687-11	METAL CHIP	33K 0.50% 1/10W
R832	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R833	1-216-105-00	METAL GLAZE	220K 5% 1/10W
R834	1-216-103-00	METAL GLAZE	180K 5% 1/10W
R835	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R836	1-216-242-00	METAL GLAZE	68K 5% 1/8W
R837	1-216-695-11	METAL CHIP	68K 0.50% 1/10W
R838	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R839	1-216-062-00	METAL GLAZE	3.6K 5% 1/10W
R841	1-249-397-11	CARBON	22 5% 1/4W F
R842	1-215-890-11	METAL OXIDE	470 5% 2W F
R845	1-216-107-00	METAL GLAZE	270K 5% 1/10W
R846	1-216-671-11	METAL CHIP	6.8K 0.50% 1/10W
R847	1-216-101-00	METAL GLAZE	150K 5% 1/10W
R849	1-215-881-11	METAL OXIDE	15 5% 2W F
R851	1-247-743-11	CARBON	220 5% 1/2W F
R852	1-249-389-11	CARBON	4.7 5% 1/4W F
R853	1-249-443-11	CARBON	0.47 5% 1/4W F
R854	1-249-443-11	CARBON	0.47 5% 1/4W F
R855	1-202-818-00	SOLID	1K 10% 1/2W
R858	1-249-425-11	CARBON	4.7K 5% 1/4W
R864	1-216-101-00	METAL CHIP	150K 0.50% 1/10W
R865	1-247-901-11	CARBON	820K 5% 1/4W
R866	1-216-103-00	METAL GLAZE	180K 5% 1/10W
R867	1-216-113-00	METAL GLAZE	470K 5% 1/10W
R868	1-249-428-11	CARBON	8.2K 5% 1/4W
R871	1-249-493-11	CARBON	56K 5% 1/2W
R872	1-249-393-11	CARBON	10 5% 1/4W F
R873	1-249-393-11	CARBON	10 5% 1/4W F
R876	1-249-421-11	CARBON	2.2K 5% 1/4W F
R877	1-215-880-00	METAL OXIDE	10 5% 2W F
R878	1-215-883-11	METAL OXIDE	33 5% 2W F
R884	1-216-693-11	METAL CHIP	56K 0.50% 1/10W
R889	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R893	1-215-878-00	METAL OXIDE	33K 5% 1W F
R894	1-216-264-00	METAL GLAZE	560K 5% 1/8W
R895	1-216-079-00	METAL GLAZE	18K 5% 1/10W
R897	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R898	1-216-262-00	METAL GLAZE	470K 5% 1/8W
R1501	1-216-673-11	METAL CHIP	8.2K 0.50% 1/10W
R1502	1-216-664-11	METAL CHIP	3.6K 0.50% 1/10W
R1503	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R1504	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R1505	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R1506	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R1508	1-216-684-11	METAL CHIP	24K 0.50% 1/10W
R1509	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R1510	1-249-382-11	CARBON	1.2 5% 1/4W F
R1511	1-215-887-00	METAL OXIDE	150 5% 2W F
R1512	1-216-371-00	METAL OXIDE	1.5 5% 2W F
R1513	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R1514	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R1551	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
<VARIABLE RESISTOR>			
RV601	1-241-628-11	RES, ADJ, CARBON 2.2K	

Les composants identifiés par une trame et une marque **Δ** sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

The components identified by shading and mark **Δ** are critical for safety. Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION	REMARK
<TRANSFORMER>			
T601	Δ 1-697-001-11	S.R.T (SMT89)	
T801	Δ 1-453-123-11	TRANSFORMER ASSY, FLYBACK (UX-2602A3)	
T803	1-437-090-00	HDT	
T895	1-413-059-00	TRANSFORMER, FERRITE (DFT)	
*****			
MISCELLANEOUS			
*****			
<KV-E2531B,E2531D>			
Δ 1-402-746-21		COIL, DEGAUSSING	
Δ 1-451-311-21		DEFLECTION YOKE (Y25FXA)	
1-452-032-00		MAGNET, DISK; 10MM φ	
1-452-094-00		MAGNET, ROTABLE DISK; 15MM φ	
1-504-151-11		SPEAKER (7.5X13CM)	
1-544-767-11		SPEAKER (13CM)	
Δ 1-590-460-11		CORD, POWER (WITH CONNECTOR) (KV-E2531B)	
Δ 1-590-501-11		CORD, POWER (WITH NOISE FILTER) (KV-E2531D)	
1-696-406-11		CABLE, SPEAKER (WITH GROMMET)	
1-696-407-11		CABLE, SPEAKER (WITH GROMMET)	
1-696-409-11		CABLE, SPEAKER (WITH GROMMET)	
V901	Δ 8-733-231-05	PICTURE TUBE (A59JWC61X)	
<KV-E2931B,E2931D>			
Δ 1-402-747-21		COIL, DEGAUSSING	
Δ 1-451-313-21		DEFLECTION YOKE (Y29FXA)	
1-452-032-00		MAGNET, DISK; 10MM φ	
1-452-094-00		MAGNET, ROTABLE DISK; 15MM φ	
Δ 1-452-509-42		NECK ASSY, PICTURE TUBE (NA-308)	
1-504-151-11		SPEAKER (7.5X13CM)	
1-544-767-11		SPEAKER (13CM)	
Δ 1-590-460-11		CORD, POWER (WITH CONNECTOR) (KV-E2931B)	
Δ 1-590-501-11		CORD, POWER (WITH NOISE FILTER) (KV-E2931D)	
1-696-406-11		CABLE, SPEAKER (WITH GROMMET)	
1-696-407-11		CABLE, SPEAKER (WITH GROMMET)	
1-696-409-11		CABLE, SPEAKER (WITH GROMMET)	
V901	Δ 8-733-831-05	PICTURE TUBE (A68JYL61X)	
<KV-E3431B,E3431D>			
Δ 1-402-748-11		COIL, DEGAUSSING	
Δ 1-451-315-11		DEFLECTION YOKE (Y34FXA)	
1-452-032-00		MAGNET, DISK; 10MM φ	
1-452-094-00		MAGNET, ROTABLE DISK; 15MM φ	
Δ 1-452-579-11		NECK ASSY, PICTURE TUBE (NA322)	
1-504-151-21		SPEAKER (7.5X13CM)	
1-544-767-11		SPEAKER (13CM)	
Δ 1-590-460-11		CORD, POWER (WITH CONNECTOR) (KV-E3431B)	
Δ 1-590-501-11		CORD, POWER (WITH NOISE FILTER) (KV-E3431D)	
1-696-408-11		CABLE, SPEAKER (WITH GROMMET)	
1-696-410-11		CABLE, SPEAKER (WITH GROMMET)	
V901	Δ 8-733-723-05	PICTURE TUBE (A80JYV50X)	
*****			



The components identified by shading and mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

Les composants identifiés par une trame et une marque  $\Delta$  sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié.

KV-E2531D/E2931D/E3431D  
KV-E2531B/E2931B/E3431B  
RM-830 RM-830 RM-832

D

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
<COIL>							
L602	1-410-396-41	FERRITE BEAD INDUCTOR		JR505	1-216-296-00	METAL GLAZE 0 5% 1/8W	
L603	1-410-396-41	FERRITE BEAD INDUCTOR		JR506	1-216-296-00	METAL GLAZE 0 5% 1/8W	
L604	1-410-396-41	FERRITE BEAD INDUCTOR		JR507	1-216-296-00	METAL GLAZE 0 5% 1/8W	
L605	1-459-442-00	COIL (WITH CORE)		JR508	1-216-296-00	METAL GLAZE 0 5% 1/8W	
L606	1-459-442-00	COIL (WITH CORE)		JR509	1-216-296-00	METAL GLAZE 0 5% 1/8W	
L609	1-410-396-41	FERRITE BEAD INDUCTOR		JR510	1-216-296-00	METAL GLAZE 0 5% 1/8W	
L622	1-412-533-21	INDUCTOR 47UH		JR511	1-216-296-00	METAL GLAZE 0 5% 1/8W	
L623	1-412-533-21	INDUCTOR 47UH		JW208	1-217-587-00	RES, SHORT 0.01	1/4W
L802	1-408-947-00	INDUCTOR 2.2MMH		R601	1-216-353-00	METAL OXIDE 2.2 5% 1W F	
L803	1-420-872-00	COIL, AIR CORE		R602	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
L808	1-412-549-11	INDUCTOR 1MMH		R603	1-215-901-00	METAL OXIDE 33K 5% 2W F	
L809	1-459-111-00	COIL, DRAM CORE (CD1)		R604	1-247-883-00	CARBON 150K 5% 1/4W	
L809	1-459-111-00	COIL, DRAM CORE (CD1)		R605	1-216-313-00	METAL GLAZE 8.2 5% 1/10W	
L810	1-460-197-11	COIL, FERRITE (PMC)		R606	1-216-033-00	METAL GLAZE 220 5% 1/10W	
L811	1-412-519-11	INDUCTOR 3.3UH		R607	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
L812	1-412-519-11	INDUCTOR 3.3UH		R608	1-215-928-11	METAL OXIDE 68K 5% 3W F	
L813	1-412-519-11	INDUCTOR 3.3UH		R609	1-216-005-00	METAL GLAZE 15 5% 1/10W	
L817	1-402-684-11	HLT		R610	1-247-885-00	CARBON 180K 5% 1/4W	
L1501	1-412-531-31	INDUCTOR 33UH		R611	1-249-405-11	CARBON 100 5% 1/4W	
L1502	1-412-525-21	INDUCTOR 10UH		R612	1-247-894-11	CARBON 430K 5% 1/4W	
L1503	1-412-531-31	INDUCTOR 33UH		R613	1-216-260-00	METAL GLAZE 390K 5% 1/8W	
<IC LINK>				R614	1-216-487-11	METAL OXIDE 12K 5% 3W F	
PS601 $\Delta$	1-532-686-91	LINK, IC 2.7A		R615	1-216-487-11	METAL OXIDE 12K 5% 3W F	
PS602 $\Delta$	1-532-686-91	LINK, IC 2.7A		R617	1-216-033-00	METAL GLAZE 220 5% 1/10W	
PS603 $\Delta$	1-532-686-91	LINK, IC 2.7A		R618	1-216-449-11	METAL OXIDE 56 5% 2W F	
PS604 $\Delta$	1-532-686-91	LINK, IC 2.7A		R620	1-216-045-00	METAL GLAZE 680 5% 1/10W	
<TRANSISTOR>				R621	1-216-659-11	METAL CHIP 2.2K 0.50% 1/10W	
Q601	8-729-016-14	TRANSISTOR BUZ91A-E3155		R622	1-216-041-00	METAL GLAZE 470 5% 1/10W	
Q602	8-729-177-22	TRANSISTOR 2SB772-Q		R623	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
Q603	8-729-900-53	TRANSISTOR DTC114EK		R625	1-216-449-11	METAL OXIDE 56 5% 2W F	
Q610	8-729-216-22	TRANSISTOR 2SA1162-G		R626	1-216-635-11	METAL CHIP 220 0.50% 1/10W	
Q611	8-729-119-78	TRANSISTOR 2SC2785-HFE		R627	1-249-398-11	CARBON 27 5% 1/4W F	
Q801	8-729-016-32	TRANSISTOR 2SC4927-01		R628	1-215-464-00	METAL 62K 1% 1/4W	
Q802	8-729-140-97	TRANSISTOR 2SB734-34		R629	1-215-464-00	METAL 62K 1% 1/4W	
Q804	8-729-216-22	TRANSISTOR 2SA1162-G		R630	1-216-045-00	METAL GLAZE 680 5% 1/10W	
Q805	8-729-216-22	TRANSISTOR 2SA1162-G		R631	1-216-397-11	METAL OXIDE 4.7 5% 3W F	
Q806	8-729-011-00	TRANSISTOR 2SK1916-02F87		R633	1-249-415-11	CARBON 680 5% 1/4W	
Q807	4-382-854-11	SCREW (M3X10), P. SW (+); Q806		R634	1-215-477-00	METAL 220K 1% 1/4W	
Q812	8-729-119-80	TRANSISTOR 2SC2688-LK		R635	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
Q813	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R636	1-216-452-11	METAL OXIDE 180 5% 2W F	
Q818	8-729-140-96	TRANSISTOR 2SD774-34		R637	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
Q818	8-729-216-22	TRANSISTOR 2SA1162-G		R638	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
Q1501	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R639	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
Q1502	8-729-901-01	TRANSISTOR DTC144EK		R640	1-207-905-00	WIREWOUND 0.27 10% 2W F	
Q1503	8-729-216-22	TRANSISTOR 2SA1162-G		R651	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
Q1504	8-729-901-01	TRANSISTOR DTC144EK		R801	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
<RESISTOR>				R802	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR001	1-216-295-00	METAL GLAZE 0 5% 1/10W		R804	1-217-778-11	FUSIBLE 1K 5% 1W F	
JR002	1-216-295-00	METAL GLAZE 0 5% 1/10W		R805	1-216-677-11	METAL CHIP 12K 0.50% 1/10W	
JR003	1-216-295-00	METAL GLAZE 0 5% 1/10W		R806	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
JR004	1-216-295-00	METAL GLAZE 0 5% 1/10W		R807	1-216-037-00	METAL GLAZE 330 5% 1/10W	
JR005	1-216-295-00	METAL GLAZE 0 5% 1/10W		R808	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
JR500	1-216-296-00	METAL GLAZE 0 5% 1/8W		R809	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
JR501	1-216-296-00	METAL GLAZE 0 5% 1/8W		R811	1-216-033-00	METAL GLAZE 220 5% 1/10W	
JR502	1-216-296-00	METAL GLAZE 0 5% 1/8W		R812	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
JR503	1-216-296-00	METAL GLAZE 0 5% 1/8W		R813	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
JR504	1-216-296-00	METAL GLAZE 0 5% 1/8W		R814	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
				R815	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
				R819	1-247-755-11	CARBON 1.8K 5% 1/2W F	
				R820	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
				R821	1-216-481-11	METAL OXIDE 1.2K 5% 3W F	
				R822	1-216-481-11	METAL OXIDE 1.2K 5% 3W F	
				R823	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	



REF. NO.	PART NO.	DESCRIPTION	REMARK
ACCESSORIES AND PACKING MATERIALS			
*****			
<KV-E2531B,E2531D>			
	A-1678-043-A	BOX ASSY, WOOFER	
	A-1678-044-A	BOX COMPLETE ASSY (L)	
	A-1678-047-A	BOX COMPLETE ASSY (R)	
	3-755-382-81	MANUAL, INSTRUCTION (FRENCH) (KV-E2531B)	
	3-755-382-11	MANUAL, INSTRUCTION (GERMAN/ENGLISH/ FRENCH/DUTCH/ITALIAN/PORTUGUESE)	(KV-E2531D)
	*4-201-012-02	CUSHION (UPPER) (ASSY)	
	*4-201-013-01	CUSHION (LOWER) (ASSY)	
	*4-201-015-04	INDIVIDUAL CARTON	
	*4-380-340-01	BAG, PROTECTION	
<KV-E2931B,E2931D>			
	A-1678-040-A	BOX COMPLETE ASSY (R)	
	A-1678-041-A	BOX COMPLETE ASSY (L)	
	A-1678-043-A	BOX ASSY, WOOFER	
	3-755-382-81	MANUAL, INSTRUCTION (FRENCH) (KV-E2931B)	
	3-755-382-11	MANUAL, INSTRUCTION (GERMAN/ENGLISH/ FRENCH/DUTCH/ITALIAN/PORTUGUESE)	(KV-E2931D)
	*4-200-036-02	INDIVIDUAL CARTON	
	*4-200-041-02	CUSHION (UPPER) (ASSY)	
	*4-200-042-01	CUSHION (LOWER) (ASSY)	
	*4-384-027-01	BAG, PROTECTION	
<KV-E3431B,E3431D>			
	A-1678-038-A	BOX COMPLETE ASSY (RIGHT)	
	A-1678-039-A	BOX COMPLETE ASSY (LEFT)	
	A-1678-050-A	BOX ASSY, WOOFER	
	*X-4200-082-1	CUSHION ASSY, FRONT	
	X-4374-104-1	SCREW (B) ASSY, ORNAMENTAL	
	1-506-450-11	PLUG, AERIAL CONVERSION	(KV-E3431B)
	4-200-975-51	MANUAL, INSTRUCTION (FRENCH/GERMAN/ ITALIAN)	(KV-E3431B)
	4-200-975-11	MANUAL, INSTRUCTION (GERMAN/ENGLISH/ FRENCH/DUTCH/ITALIAN)	(KV-E3431D)
	*4-202-175-01	CUSHION (UPPER) (ASSY)	
	*4-202-178-01	TRAY	
	*4-202-179-01	INDIVIDUAL CARTON	
	*4-202-180-01	CUSHION (LOWER)	
	*4-202-181-01	PALLET	
	*4-388-954-01	BAG, PROTECTION	
	*4-396-077-01	JOINT	
REMOTE COMMANDER			
	1-693-176-11	REMOTE COMMANDER (RM-830) (KV-E2531B,E2531D,E2931B,E2931D)	
	1-466-804-11	REMOTE COMMANDER (RM-832) (KV-E3431B,E3431D)	
	9-903-466-01	POCKET COVER (FOR RM-830,RM-832)	